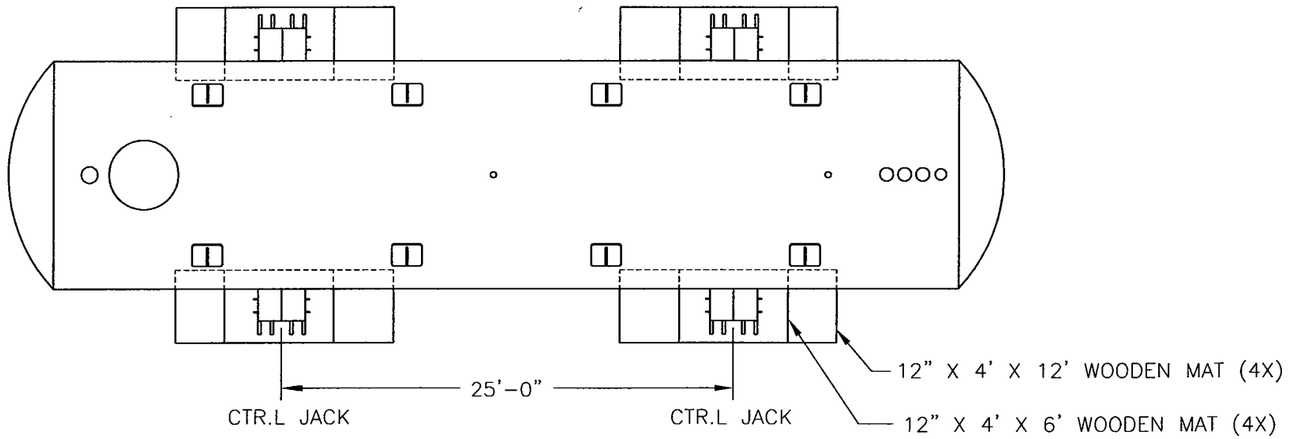
Attachment 1

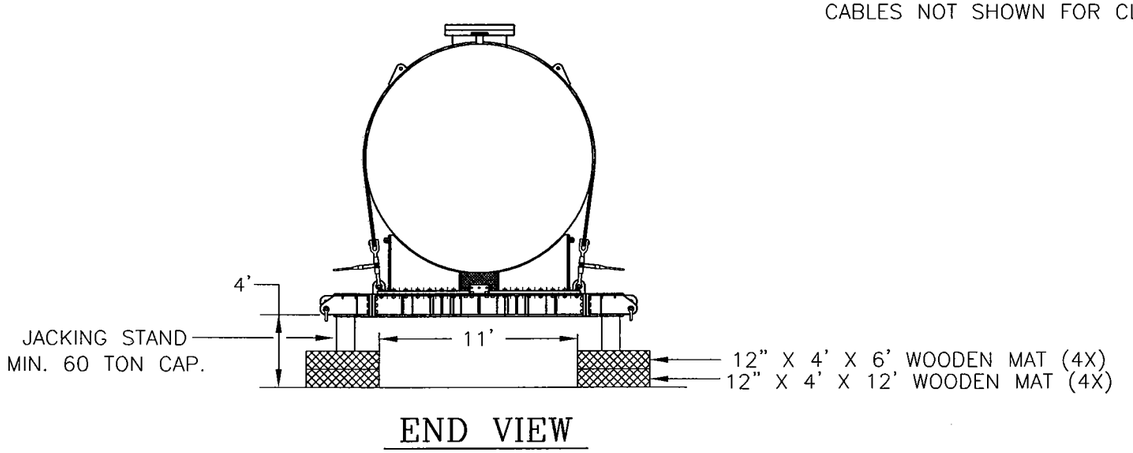
PM-2A Tanks Design Drawings

CONTENTS



PLAN VIEW

CABLES NOT SHOWN FOR CLARITY



END VIEW

GENERAL NOTES:

1: ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

2: THE DESIGN OF THE DURATEK SERVICES, INC. SUPPLIED EQUIPMENT RELIES ON INFORMATION SUPPLIED BY THIRD PARTIES PERTAINING TO THE CONDITION OF THE PM-2A TANKS AND THE LOCAL SITE CONDITIONS

3: SUPPORTING CALCULATIONS ARE PROVIDED IN DURATEK STRUCTURAL CALCULATIONS ST-464, ST-467 AND ST-468

Certification

I, Mirza I. Baig, a licensed Professional Engineer in the state of New Jersey (License No. 24GE02674000), experienced in the design of structural components, certify that the design of the Duratek Services, Inc. supplied equipment is based on sound engineering practices that have been applied for numerous years in the nuclear waste industry. This equipment has been designed and analyzed by engineers proficient in structural engineering and have performed the work under my supervision.

STATE OF NEW JERSEY
MIRZA I. BAIG
No. 24740
LICENSED PROFESSIONAL ENGINEER

PROPRIETARY

NON-PROPRIETARY

TOLERANCES (UNLESS NOTED)

HOLE DIA. & LOC. ±1/32 DEC. .X ±.1
DEC. .XX ±.01 DEC. .XXX ±.005
ANGLES ±1° FRACTIONS ±1/8
DOES NOT APPLY TO REFERENCE DIMENSIONS

FSCM No. 54643

DO NOT SCALE PRINT

DIMENSIONS ARE IN INCHES UNLESS NOTED

CAD FILE No. C067RP00030020102

REVIEWERS OF ORIGINAL (REV. 0)

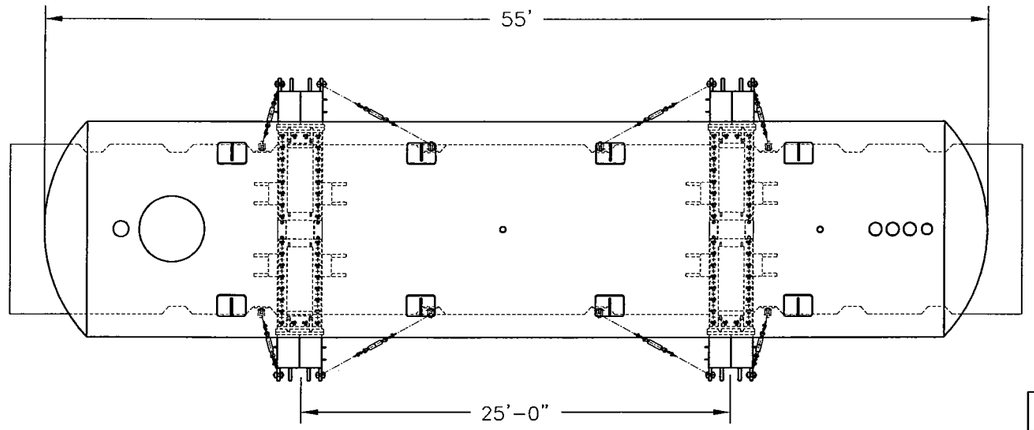
DRAWN BY	R.BREHEN	05/12/04
CHECKED BY	M.ROZINSKI	05/12/04
ENGINEER	J.GHITA	05/12/04

Duratek™

INEEL PM-2A TANK SITE CRIBBING

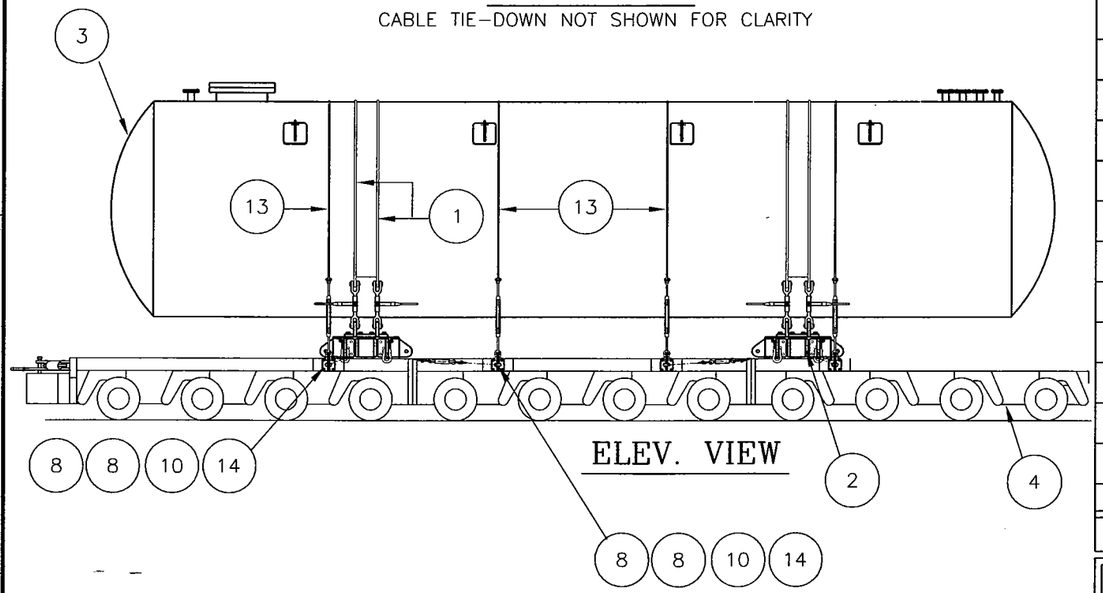
SIZE	DRAWING NUMBER	REV.
B	C-067-RP0003-002	2

SCALE 1/100 WT. N / A SHEET 1 OF 1

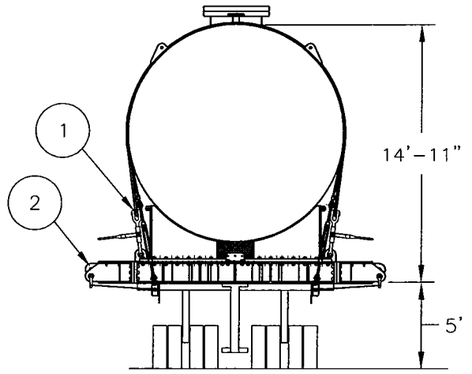


PLAN VIEW

CABLE TIE-DOWN NOT SHOWN FOR CLARITY



ELEV. VIEW



REAR VIEW

GENERAL NOTES:

1: ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

2: A CONTAMINATION BARRIER WILL BE PLACED BETWEEN THE SADDLE AND THE TANK

3: THE DESIGN OF THE DURATEK SERVICES, INC. SUPPLIED EQUIPMENT RELIES ON INFORMATION SUPPLIED BY THIRD PARTIES PERTAINING TO THE CONDITION OF THE PM-2A TANKS AND THE LOCAL SITE CONDITIONS

4: SUPPORTING CALCULATIONS ARE PROVIDED IN DURATEK STRUCTURAL CALCULATIONS ST-464, ST-467 AND ST-468

ITEM	QTY	DESCRIPTION	SPEC. AND / OR PART No.
14	32	HEX HD BOLT, 1 1/8-7 UNC X 2" LG, (SUPPLIED BY MULLEN CO.)	ASTM A449
13	4	CABLE ASSEMBLY, SEE DWG. C-0670RP0003-007, ASSY.-2	———
12	1	PRIME MOVER W/COUNTER WEIGHT, 17,500 LB	———
11	4	TRANSMAT #7619 X 1/2" THK. (LENGTH AND WIDTH AS REQ'D)	ALLEGHENY INDUSTRIAL ASSOCIATES OR EQ.
10	8	TRAILER TIE-DOWN LUG, SEE DWG. C-067-RP0003-010 ITEM -1	———
9	2	TRANSMAT #7513 X 3mm THK. (LENGTH AND WIDTH AS REQ'D)	ALLEGHENY INDUSTRIAL ASSOCIATES OR EQ.
8	16	1" NOM. SIZE SHACKLE, 8 1/2 TON W.L.L	———
7	8	1 1/2" NOM. SIZE SHACKLE, 17 TON W.L.L	———
6	A/R	1/2" CHAIN SIZE, 11,300 LBS W.L.L (HIGH TENSILE)	———
5	8	RATCHET BINDER, 13,000 LBS. W.L.L	CROSBY OR EQ.
4	1	12 AXLE GOLDHOFER TRANSPORTER	———
3	1	INEEL PM-TA TANK, 55,000 GAL CAP,	———
2	2	SADDLE SUPPORT BEAM ASSEMBLY, SEE DWG. C-067-RP0003-005	———
1	4	CABLE ASSEMBLY, SEE DWG. C-0670RP0003-007, ASSY -1	———

BILL OF MATERIALS

Certification

I, Mirza I. Baig, a licensed Professional Engineer in the state of New Jersey (License No. 24GE02674000), experienced in the design of structural components, certify that the design of the Duratek Services, Inc. supplied equipment is based on sound engineering practices that have been applied for numerous years in the nuclear waste industry. This equipment has been designed and analyzed by engineers proficient in structural engineering and have performed the work under my supervision.

STATE OF NEW JERSEY MIRZA I. BAIG No. 26740 LICENSED PROFESSIONAL ENGINEER

[ ] PROPRIETARY

[X] NON-PROPRIETARY

TOLERANCES (UNLESS NOTED)

HOLE DIA. & LOC. ±1/32 DEC. .X ±.1
DEC. .XX ±.01 DEC. .XXX ±.005
ANGLES ±1° FRACTIONS ±1/8
DOES NOT APPLY TO REFERENCE DIMENSIONS

FSCM No. 54643

DO NOT SCALE PRINT

DIMENSIONS ARE IN INCHES UNLESS NOTED

CAD FILE No. C067RP00030030102

REVIEWERS OF ORIGINAL (REV. 0)

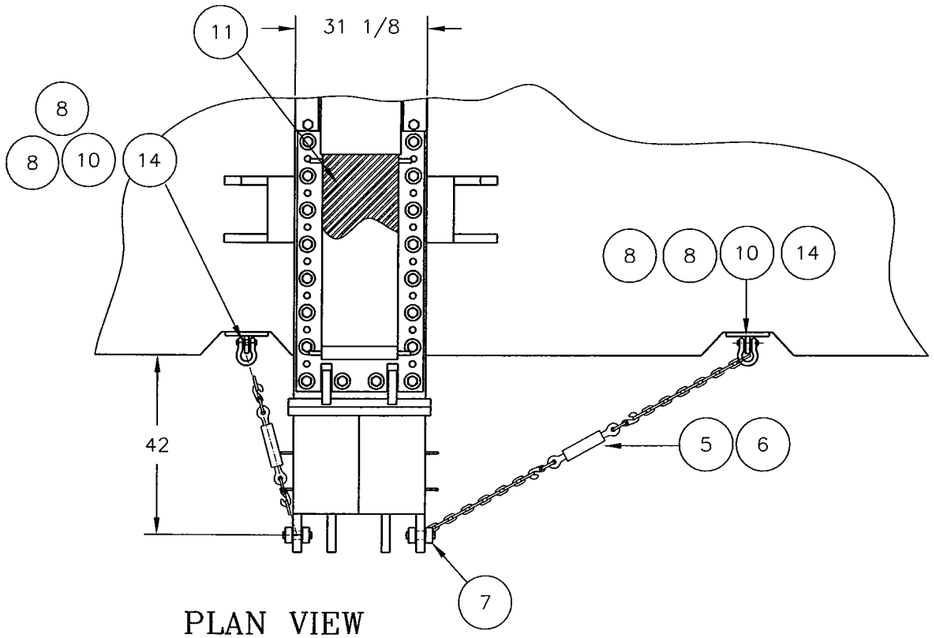
DRAWN BY	R.BREHEN	05/12/04
CHECKED BY	M.ROZINSKI	05/12/04
ENGINEER	J.GHITA	05/12/04

Duratek™

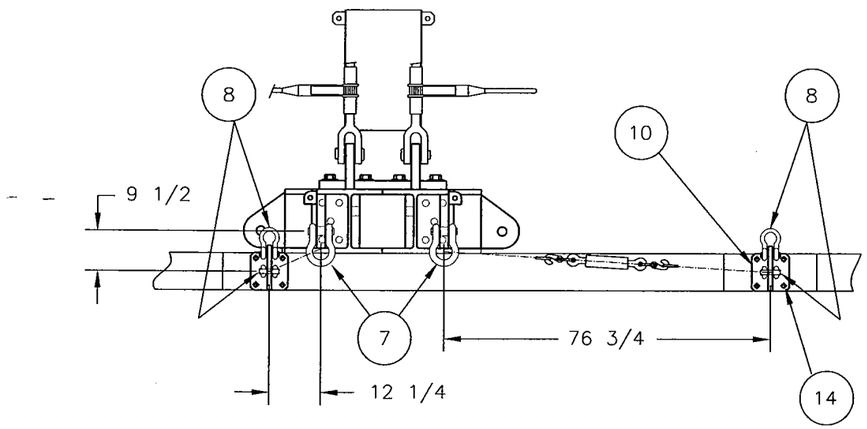
INEEL PM-2A TANK SITE TRANSPORTATION AND HARDWARE

SIZE	DRAWING NUMBER	REV.
B	C-067-RP0003-003	2

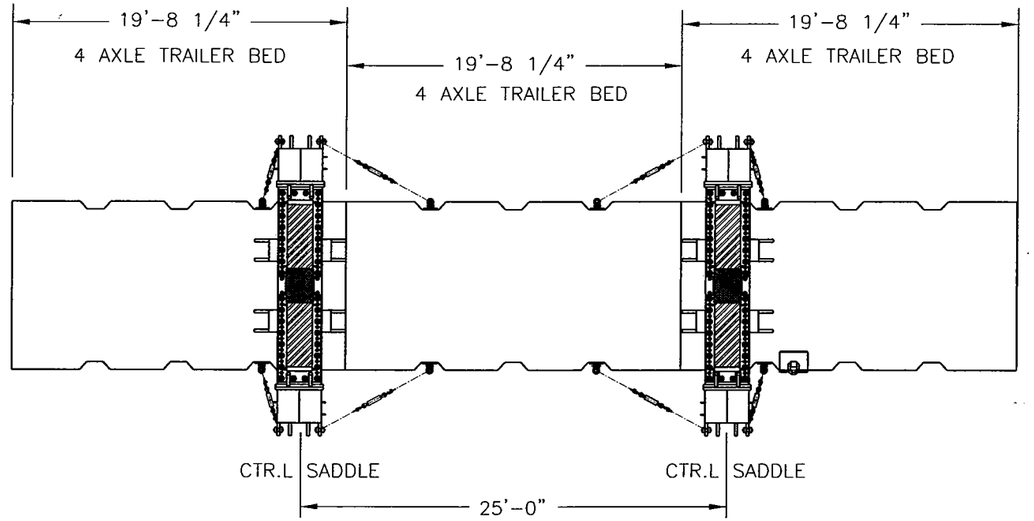
SCALE 1/100 WT. N / A SHEET 1 OF 3



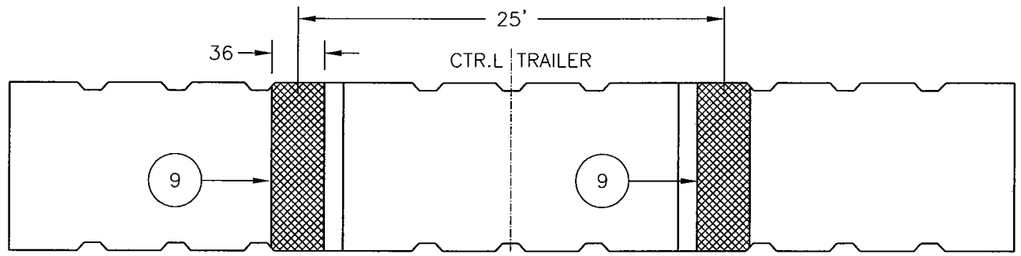
PLAN VIEW
TIE-DOWN DETAIL



ELEV. VIEW

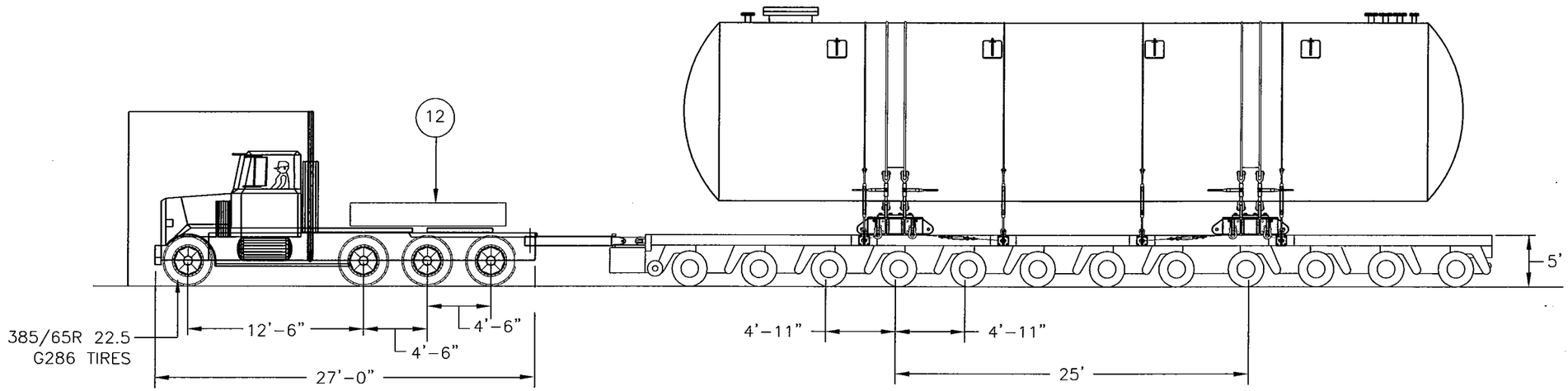


TIE-DOWN DETAIL
PLAN VIEW



MAT LAY-OUT

☐ PROPRIETARY ☒ NON-PROPRIETARY	FSCM No. 54643	Duratek™	
TOLERANCES (UNLESS NOTED) HOLE DIA. & LOC. ±1/32 DEC. .X ±.1 DEC. .XX ±.01 DEC. .XXX ±.005 ANGLES ±1° FRACTIONS ±1/8 DOES NOT APPLY TO REFERENCE DIMENSIONS	DO NOT SCALE PRINT DIMENSIONS ARE IN INCHES UNLESS NOTED CAD FILE No. C067RP00030030202 REVIEWERS OF ORIGINAL (REV. 0)	INEEL PM-2A TANK SITE TRANSPORTATION AND HARDWARE	
THIS DRAWING IS THE PROPERTY OF DURATEK IT IS LOANED UPON THE CONDITION THAT IT IS NOT TO BE REPRODUCED, COPIED OR LOANED TO OTHERS WITHOUT WRITTEN PERMISSION OF DURATEK	DRAWN BY R.BREHEN 05/12/04 CHECKED BY M.ROZINSKI 05/12/04 ENGINEER J.GHITA 05/12/04	SIZE B DRAWING NUMBER C-067-RP0003-003 REV. 2 N / A SHEET 2 OF 3	



PRIME MOVER DATA		
FRONT	WEIGHT = 15,000 LBS	1 AXLES
	TIRES/AXLE	2
	TIRES CONTACT AREA	5.55 SQ.FT
	PSF	2,702
BACK	WEIGHT = 26,500 LBS	3 AXLES
	TIRES/AXLE	4
	TIRES CONTACT AREA	10.03 SQ.FT
	PSF	2,629
WT. UNITS		
TRUCK		24,000 LB
COUNTERWEIGHT		17,500 LB
TOTAL WT.		41,500 LB

TRANSPORTER DATA	
No. OF AXLES	12 AXLES
TIRES/AXLE	8
TIRES CONTACT AREA	88.36 SQ.IN.
TOTAL CONTACR AREA	8,482.56 SQ. IN.
PSI	28
PSF	4,032
WT. UNITS	
TRANSPORTER	80,000 LB
TANK	117,000 LB
SADDLE SUPPORT/SADDLE	40,000 LB
TOTAL LOAD	237,000 LB

☐ PROPRIETARY
☒ NON-PROPRIETARY

TOLERANCES (UNLESS NOTED)
HOLE DIA. & LOC. ±1/32 DEC. .X ±.1
DEC. .XX ±.01 DEC. .XXX ±.005
ANGLES ±1° FRACTIONS ±1/8
DOES NOT APPLY TO REFERENCE DIMENSIONS

FSCM No. 54643

DO NOT SCALE PRINT

DIMENSIONS ARE IN INCHES UNLESS NOTED

CAD FILE No. C067RP00030302

REVIEWERS OF ORIGINAL (REV. 0)

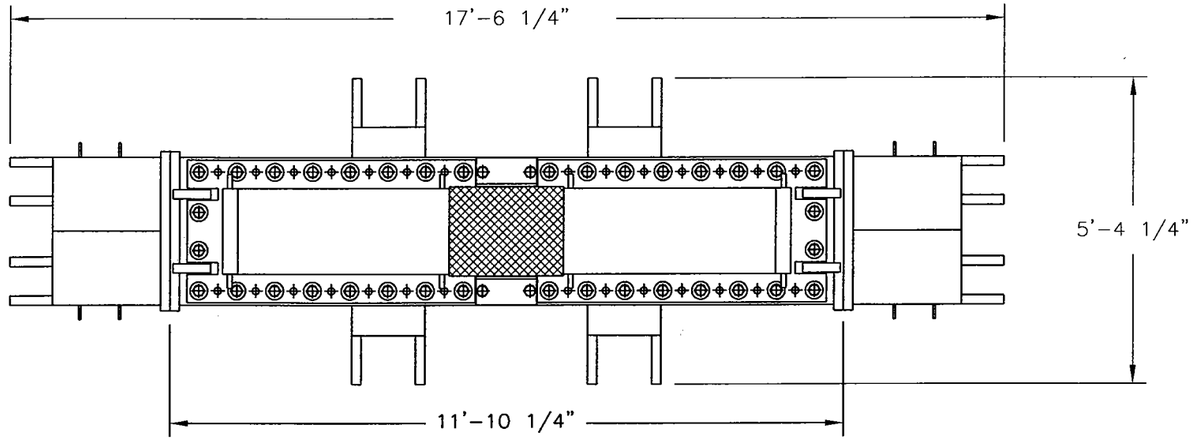
DRAWN BY	R.BREHEN	05/12/04
CHECKED BY	M.ROZINSKI	05/12/04
ENGINEER	J.GHITA	05/12/04

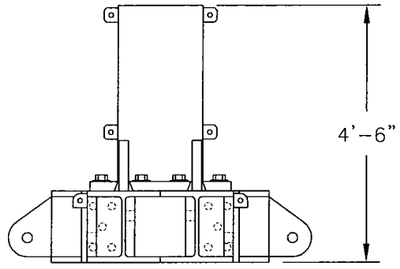
Duratek™

INEEL PM-2A TANK SITE TRANSPORTATION AND HARDWARE

SIZE	DRAWING NUMBER	REV.
B	C-067-RP0003-003	2

SCALE 1/100 WT. N / A SHEET 3 OF 3





END VIEW

GENERAL NOTES:

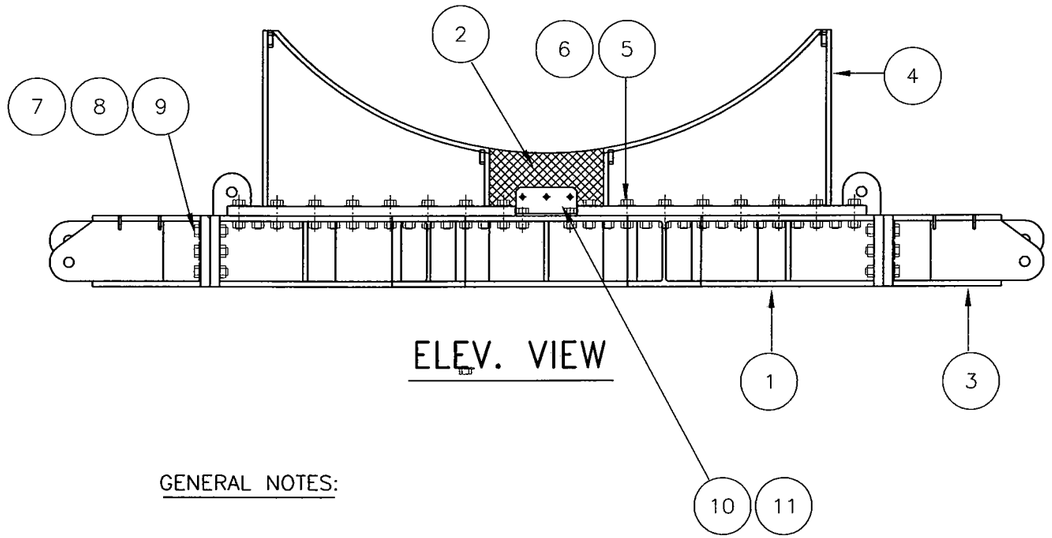
1: QTY. IN PARTS LIST ARE FOR ONE (1) UNIT ONLY

2: TOTAL ASSEMBLY WEIGHT 18,000 LB

3: ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

4: THE DESIGN OF THE DURATEK SERVICES, INC. SUPPLIED EQUIPMENT RELIES ON INFORMATION SUPPLIED BY THIRD PARTIES PERTAINING TO THE CONDITION OF THE PM-2A TANKS AND THE LOCAL SITE CONDITIONS

5: SUPPORTING CALCULATIONS ARE PROVIDED IN DURATEK STRUCTURAL CALCULATIONS ST-464, ST-467 AND ST-468



ELEV. VIEW

GENERAL NOTES:

ITEM	QTY	DESCRIPTION	SPEC. AND / OR PART No.
11	6	LAG SCREW, 1/2" DIA. X 3" LG, GALVANIZED	COML.
10	2	ANGLE, SEE DWG. C-067-RP0003-010 ITEM -2	———
9	20	FLAT WASHER, 1 1/2" I.D NOM.	ASTM F436
8	20	HEX NUT, 1 1/2"-6 UNC THR'D	ASTM A194-2H
7	20	HEX HEAD BOLT, 1 1/2-6 UNC THR'D X 6" LG.	ASTM A325
6	40	FLAT WASHER, 1 3/8" I.D NOM.	ASTM F436
5	40	HEX HEAD BOLT, 1 3/8-6 UNC THR'D X 5" LG.	ASTM A325
4	2	SADDLE DETAIL, SEE DWG. C-067-RP0003-006	———
3	2	SADDLE SUPPORT BEAM EXTENSION, SEE DWG. C-110-D-44010-121	———
2	1	WOODEN SPACER BLOCK, SEE DWG. C-067-RP0003-011	———
1	1	SUPPORT BEAM ASSEMBLY, SEE DWG. C-110-B-44010-120	———

BILL OF MATERIALS

Certification

I, Mirza I. Baig, a licensed Professional Engineer in the state of New Jersey (License No. 24GE02674000), experienced in the design of structural components, certify that the design of the Duratek Services, Inc. supplied equipment is based on sound engineering practices that have been applied for numerous years in the nuclear waste industry. This equipment has been designed and analyzed by engineers proficient in structural engineering and have performed the work under my supervision.

STATE OF NEW JERSEY MIRZA I. BAIG NO. 26740 LICENSED PROFESSIONAL ENGINEER

[ ] PROPRIETARY
[X] NON-PROPRIETARY

TOLERANCES (UNLESS NOTED)

HOLE DIA. & LOC. ±1/32 DEC. .X ±.1
DEC. .XX ±.01 DEC. .XXX ±.005
ANGLES ±1° FRACTIONS ±1/8
DOES NOT APPLY TO REFERENCE DIMENSIONS

FSCM No. 54643

DO NOT SCALE PRINT

DIMENSIONS ARE IN INCHES UNLESS NOTED

CAD FILE No. C067RP00030050102

REVIEWERS OF ORIGINAL (REV. 0)

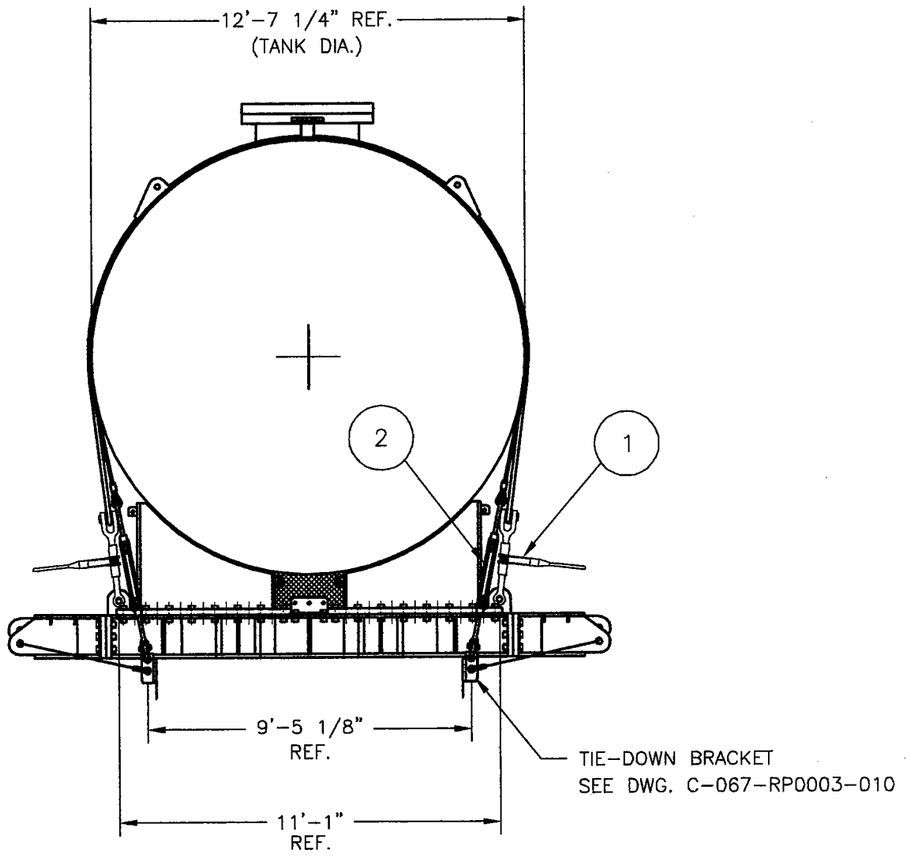
DRAWN BY	R.BREHEN	05/12/04
CHECKED BY	M.ROZINSKI	05/12/04
ENGINEER	J.GHITA	05/12/04

Duratek™

INEEL PM-2A TANK SADDLE/SUPPORT BEAM ASSEMBLY

SIZE	DRAWING NUMBER	REV.
B	C-067-RP0003-005	2

SCALE 1/32 WT. N / A SHEET 1 OF 1



CABLE GEOMETRY

GENERAL NOTES:

1: ITEMS IN PARTS LIST AS SHOWN ARE FOR ONE (1) UNIT ONLY

2: THE DESIGN OF THE DURATEK SERVICES, INC. SUPPLIED EQUIPMENT RELIES ON INFORMATION SUPPLIED BY THIRD PARTIES PERTAINING TO THE CONDITION OF THE PM-2A TANKS AND THE LOCAL SITE CONDITIONS

3: SUPPORTING CALCULATIONS ARE PROVIDED IN DURATEK STRUCTURAL CALCULATIONS ST-464, ST-467 AND ST-468

ITEM	QTY	DESCRIPTION	SPEC. AND / OR PART No.
10	1	WIRE ROPE, 3/4" DIA. X LENGTH AS REQ'D., IWRC. EIPS, 6 x 19 CLASS..	B30.9
9	2	THIMBLE, FOR 3/4" DIA. WIRE CABLE, STOCK No. 1037390 - G411	CROSBY OR EQ.
8	2	SLEEVE, FOR 3/4" DIA. WIRE CABLE, STOCK No. 1041206 - S-505	CROSBY OR EQ.
7	2	1 1/4" X 24 JAW AND JAW TURNBUCKLE, 15,200 LB W.L.L, #1032910	CROSBY OR EQ.
6	2	2" JAW AND JAW RATCHET BINDER, W/11" LG. THR'D BARREL,185,000 LB BREAKING STRENGTH	PATTERSON OR EQ.
5	1	WIRE ROPE, 1 3/8" DIA. X LENGTH AS REQ'D., IWRC. EIPS, 6 x 19 CLASS..	B30.9
4	2	THIMBLE, FOR 1 3/8" DIA. WIRE CABLE, STOCK No. 1037853 - G414	CROSBY OR EQ.
3	2	SLEEVE, FOR 1 3/8" DIA. WIRE CABLE, STOCK No. 1041303 - S-505	CROSBY OR EQ.
2	1	CABLE ASSEMBLY- 2	———
1	1	CABLE ASSEMBLY -1	———

BILL OF MATERIALS

Certification

I, Mirza I. Baig, a licensed Professional Engineer in the state of New Jersey (License No. 24GE02674000), experienced in the design of structural components, certify that the design of the Duratek Services, Inc. supplied equipment is based on sound engineering practices that have been applied for numerous years in the nuclear waste industry. This equipment has been designed and analyzed by engineers proficient in structural engineering and have performed the work under my supervision.

STATE OF NEW JERSEY
MIRZA I. BAIG
No. 24740
LICENSED PROFESSIONAL ENGINEER

☐ PROPRIETARY
☒ NON-PROPRIETARY

TOLERANCES (UNLESS NOTED)
HOLE DIA. & LOC. ±1/32 DEC. .X ±.1
DEC. .XX ±.01 DEC. .XXX ±.005
ANGLES ±1° FRACTIONS ±1/8
DOES NOT APPLY TO REFERENCE DIMENSIONS

FSCM No. 54643

DO NOT SCALE PRINT
DIMENSIONS ARE IN INCHES UNLESS NOTED

CAD FILE No. C067RP00030070102

REVIEWERS OF ORIGINAL (REV. 0)

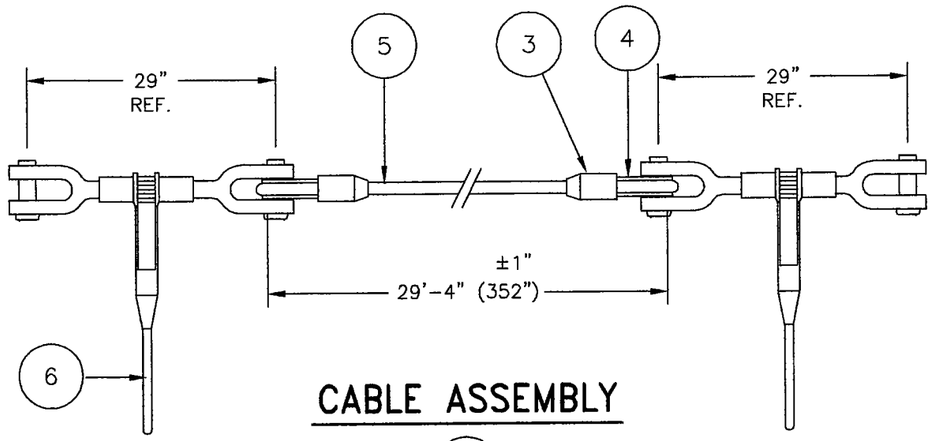
DRAWN BY	R.BREHEN	05/12/04
CHECKED BY	M.ROZINSKI	05/12/04
ENGINEER	J.GHITA	05/12/04

Duratek™

INEEL PM-2A TANK CABLE ASSEMBLY

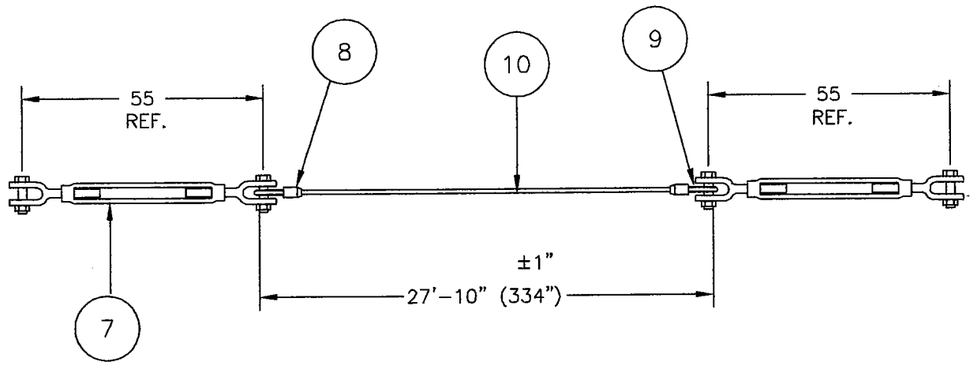
SIZE	DRAWING NUMBER	REV.
B	C-067-RP0003-007	2

SCALE 1/50 WT. N / A SHEET 1 OF 2



CABLE ASSEMBLY

1



CABLE ASSEMBLY

2

PROPRIETARY

☒ NON-PROPRIETARY

TOLERANCES (UNLESS NOTED)

HOLE DIA. & LOC. ±1/32 DEC. .X ±.1
DEC. .XX ±.01 DEC. .XXX ±.005
ANGLES ±1° FRACTIONS ±1/8
DOES NOT APPLY TO REFERENCE DIMENSIONS

FSCM No. 54643

DO NOT SCALE PRINT

DIMENSIONS ARE IN INCHES UNLESS NOTED

CAD FILE No. C067RP00030070202

REVIEWERS OF ORIGINAL (REV. 0)

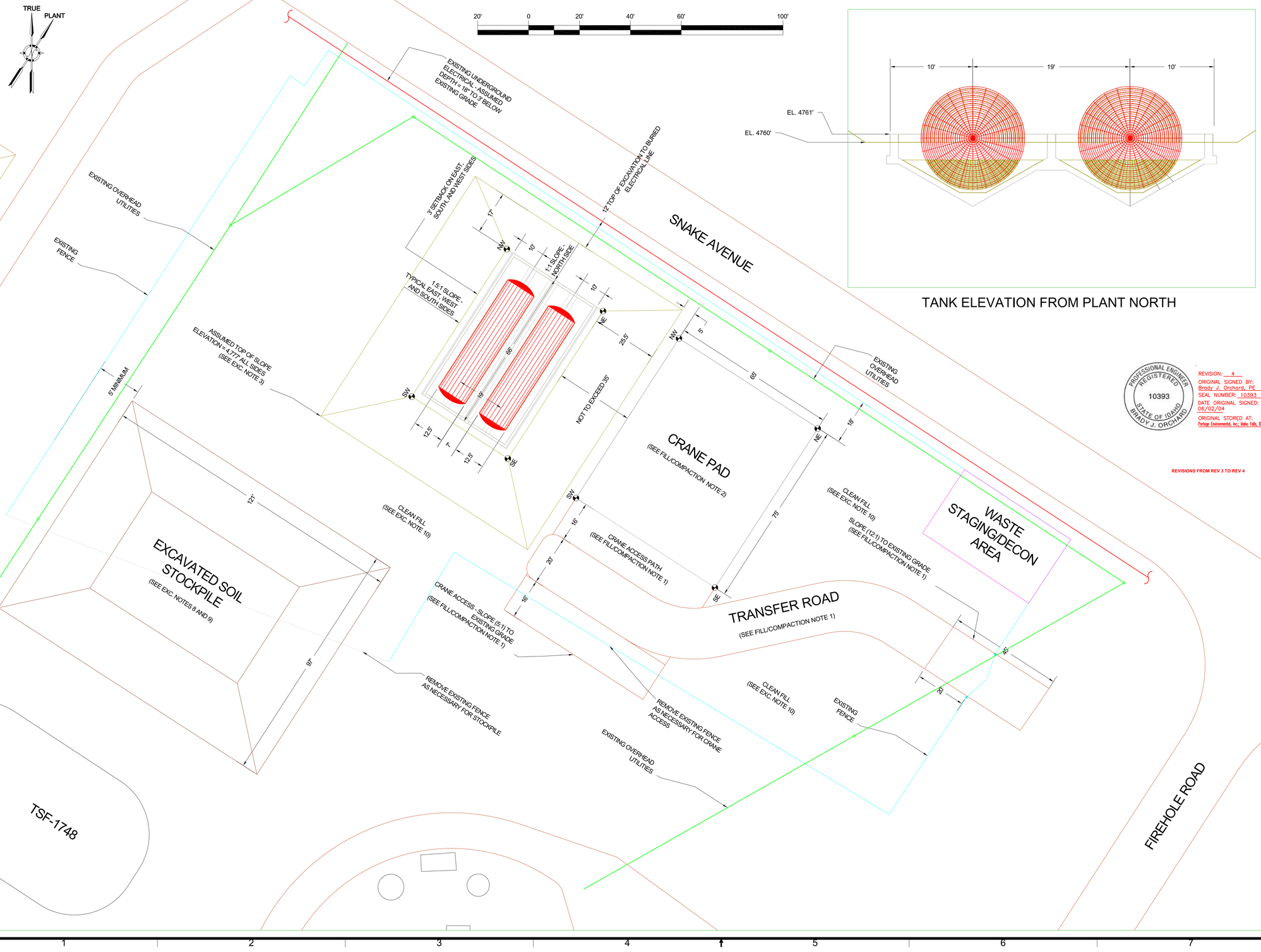
DRAWN BY	R.BREHEN	05/12/04
CHECKED BY	M.ROSINSKI	05/12/04
ENGINEER	J.GHITA	05/12/04

Duratek™

INEEL PM-2A TANK CABLE ASSEMBLY

SIZE	DRAWING NUMBER	REV.
B	C-067-RP0003-007	2

SCALE 1/50 WT. N / A SHEET 2 OF 2



REVISIONS FROM REV 3 TO REV 4

REVISIONS

REV	DESCRIPTION	EFFECTIVE DATE
1	1:1 SLOPE NORTH SIDE; REVISED FILL SPECIFICATIONS	03/25/04
2	ADDED CONDITIONS FOR 1:1 SLOPE NORTH SIDE	03/29/04
3	REVISED SLOPE ON TRANSFER ROAD	04/29/04
4	SPECIFIED FINAL COMPACTION THICKNESS	06/02/04

EXCAVATION NOTES

1. COMPLETE WORK OUTLINED IN SHEETS C-1 AND C-2 (RD/RA WORK PLAN (DOE/ID-11073, REVISION 0, DECEMBER 2003) DRAWING NO. 10355 AND 10356) . ADDITIONAL 2 FT OF SOIL TO BE REMOVED FROM SURFACE OF ENTIRE SITE PRIOR TO TANK EXCAVATION ACTIVITIES **EXCEPT AS IDENTIFIED BELOW** . SITE ELEVATION AT BEGINNING OF TANK EXCAVATION TO BE APPROXIMATELY 4777 AT NORTH END OF TANKS (CURRENT ELEVATION APPROXIMATEY 4779).
   - **15-IN. SETBACK FROM EXISTING EXCAVATION SIDES TO BE MAINTAINED ON NORTH AND WEST SIDES OF SITE.**
   - **7-FT RADIAL SETBACK TO BE MAINTAINED AROUND ALL POWER POLES AND GUY WIRES WITHIN SITE BOUNDARIES.**

2. LOCATION OF TANK EXCAVATION FOOTPRINT, SOIL STOCKPILE LOCATION, AND WASTE STAGING/DECON AREA SHOWN ON SHEETS C-3 AND C-5 (RD/RA WORK PLAN [DOE/ID-11073, REVISION 0, DECEMBER 2003] DRAWING NO. 10357 AND 10359) SUPERCEDED BY THIS DRAWING. NO ON-SITE TRAILER PAD TO BE CONSTRUCTED.

3. FINISH ELEVATIONS AND EXCAVATION CORNER COORDINATES ARE APPROXIMATE AND BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION. ACUTAL EXCAVATION CORNER LOCATION AND FOOTPRINT WILL BE GOVERNED BY THE OFFSETS IDENTIFIED ON THIS DRAWING FOR DISTANCE FROM TANKS AS EXCAVATED TO TOE OF SLOPE AND EXCAVATION SIDE SLOPES. ACTUAL EXCAVATION DEPTH SHALL BE CONTROLLED BY THE ACTUAL ELEVATION OF THE TOP OF TANK CRADLES. FINAL TOE EXCAVATION ELEVATION SHALL BE 1 FT BELOW TOP OF TANK CRADLES AND AS SHOWN ON TANK ELEVATION INSET.

4. EXCAVATE AROUND TANKS TO ELEVATIONS AND LOCATIONS INDICATED ON EXCAVATION FOOTPRINT AND DESCRIBED IN NOTES 2 AND 3. EQUIPMENT SHALL BE CAPABLE OF EXCAVATING TO THE FULL REQUIRED DEPTH FROM THE GROUND SURFACE AND ALL EXCAVATION SHALL BE COMPLETED BY DIGGING DOWN FROM THE GROUND SURFACE ELEVATION ESTABLISHED IN THE PRELIMINARY SITE GRADING. EXCAVATING EQUIPMENT SHALL NOT BE PERMITTED INSIDE THE EXCAVATION EXCEPT AS REQUIRED TO PROVIDE A FINAL WORKING SURFACE AROUND THE TANKS.

5. EXCAVATE 1 FT BELOW TOP OF TANK CRADLE AS SHOWN TO ALLOW TANK ACCESS FOR INSTALLATION OF LIFTING DEVICES (TANK CRADLE DIMENSIONS AND CONFIGURAITONS ARE APPROXIMATE).

6. **EAST, WEST, AND SOUTH SIDE SLOPES** SHALL BE MAINTAINED AT A SLOPE OF 1.5:1. IF SOIL CONDITIONS ARE ENCOUNTERED THAT DO NOT MEET OSHA REQUIREMENTS FOR 1.5:1 SLOPES, THE SUBCONTRACTOR SHALL STOP WORK AND IMMEDIATELY NOTIFY THE CONTRACTOR. THE CONCERN WILL BE RESOLVED BEFORE WORK STARTS AGAIN.

7. **NORTH SIDE SLOPE SHALL BE MAINTAINED AT A SLOPE OF 1:1 BASED ON SLOPE STABILITY CALCULATIONS (PEI-EDF-1000, MARCH 2004).**
   - **SOIL MOISTURE CONDITIONS MUST BE CLOSELY MONITORED DURING FIELD WORK. WORK SHOULD NOT PROCEED IF EXPOSED SLOPE MATERIALS BECOME SATURATED.**
   - **EQUIPMENT SHOULD NOT TRAVEL ON THE GROUND SURFACE BETWEEN THE NORTH SIDE OF THE EXCAVATION AND SNAKE AVENUE.**

8. STOCKPILES OF EXCAVATED MATERIAL WILL BE LOCATED AS SHOWN. STOCKPILE SLOPES WILL BE MAINTAINED AT 1.5:1 AND BE LOCATED A MINIMUM OF 20 FT FROM THE EDGE OF THE EXCAVATION AND 5 FT FROM FENCES AND WORK AREAS. EXACT SOIL PILE LOCATION TO BE DETERMINED BY THESE OFFSETS IN THE FIELD. SOIL PILES SHALL COMPLY WITH CFR 29, OSHA REQUIREMENTS FOR SLOPE STABILITY. PILE HEIGHTS SHALL NOT EXCEED 20 FT.

9. SURVEY AND RECORD POSITIONS AND ELEVATIONS OF CRADLE CORNERS UPON EXPOSURE. UPON COMPLETION OF FINAL GRADING AND SEEDING OPERATIONS, PLACE 4"" BRASS CAP MARKERS AT EACH CORNER WITH THE FOLLOWING INFORMATION STAMPED INTO THE CAP (COORDINATES TO BE DETERMINED BASED ON SURVEY):
   OU1-10 PM-2A TANK CRADLE CORNER
   CRADLE CORNER ELEVATION: xxxx.x
   N xxxxxx.x
   E xxxxxx.x

10. FOLLOWING EXCAVATION, 6-IN. CLEAN FILL TO BE SPREAD AND LEVELED ON ENTIRE SITE TO MINIMIZE DECONTAMINATION EXCEPT WHERE FILL AND COMPACTION REQUIREMENTS SPECIFIED BELOW.

FILL/COMPACTION REQUIREMENTS

1. NEW TRANSFER ROAD, CRANE ACCESS PATH, AND RAMPS FOR CRANE/SITE ACCESS SHALL BE CONSTRUCTED FOLLOWING TANK EXCAVATION. FILL MATERIALS SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 6-IN. IN THICKNESS, UNIFORMLY MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM OF 90 % OF MAXIMUM DRY DENSITY PER ASTM D 698, WITHIN 2 % OF OPTIMUM MOISTURE CONTENT. **FINAL COMPACTED THICKNESS TO BE MINIMUM OF 6-IN.** ROAD AND CRANE ACCESS PATH SHALL BE LEVEL. CRANE ACCESS RAMP SHALL BE SLOPED NO STEEPER THAN 5:1. TRANSPORTER ACCESS RAMP SHALL BE SLOPED NO STEEPER THAN 12:1.

2. CRANE PAD SHALL BE CONSTRUCTED FOLLOWING TANK EXCAVATION. FILL MATERIALS SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 6-IN. IN THICKNESS, UNIFORMLY MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM OF 95 % OF MAXIMUM DRY DENSITY PER ASTM D 698, WITHIN 2 % OF OPTIMUM MOISTURE CONTENT. **FINAL COMPACTED THICKNESS TO BE MINIMUM OF 6-IN.** CRANE PAD SHALL BE LEVEL WITHIN 1/2 DEGREE IN ANY DIRECTION.

3. ALL FILL MATERIALS FOR ROAD/RAMP/CRANE PAD TO CONSIST OF 3-IN MINUS OR 1.5-IN. MINUS PIT RUN GRAVEL OR 3/4-IN. CRUSH.

4. DISTANCE BETWEEN EAST TOE OF EXCAVATION AND CRANE PAD NOT TO EXCEED 35 FT. IF SITE CONDITIONS NECESSITATE SLOPING SHALLOWER THAN SPECIFIED, THE SUBCONTRACTOR SHALL STOP WORK AND IMMEDIATELY NOTIFY THE CONTRACTOR.

PRELIMINARY CONTROL COORDINATES

TOE OF EXCAVATION SLOPE	CRANE PAD
NW (X,Y,Z) - 357375, 795676, 4760	NW (X,Y,Z) - 357443, 795641, 4777
SW (X,Y,Z) - 357338, 795619, 4760	SW (X,Y,Z) - 357402, 795579, 4777
SE (X,Y,Z) - 357375, 795594, 4760	SE (X,Y,Z) - 357457, 795543, 4777
NE (X,Y,Z) - 357403, 795649, 4760	NE (X,Y,Z) - 357497, 795606, 4777

EXCAVATION QUANTITIES

TANK EXCAVATION AND REPLACEMENT - **4,000 YD3**

REFERENCES

DOE-ID 2003, "REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN FOR GROUP 3, PM-2A TANKS AND BURN PITS FOR TEST AREA NORTH, WASTE AREA GROUP 1, OPERABLE UNIT 1-10," UNITED STATES DEPARTMENT OF ENERGY - IDAHO OPERATIONS OFFICE, DOE/ID-11073, REVISION 0, DECEMBER 2003.

DRAWING SUPERCEDES GROUP 3 RD/RA WORK PLAN (TAN, WAG1, OU 1-10) DRAWING NO. 10357 - 10359

PROFESSIONAL ENGINEER REGISTERED 10393 STATE OF IDAHO BRADY J. ORCHARD

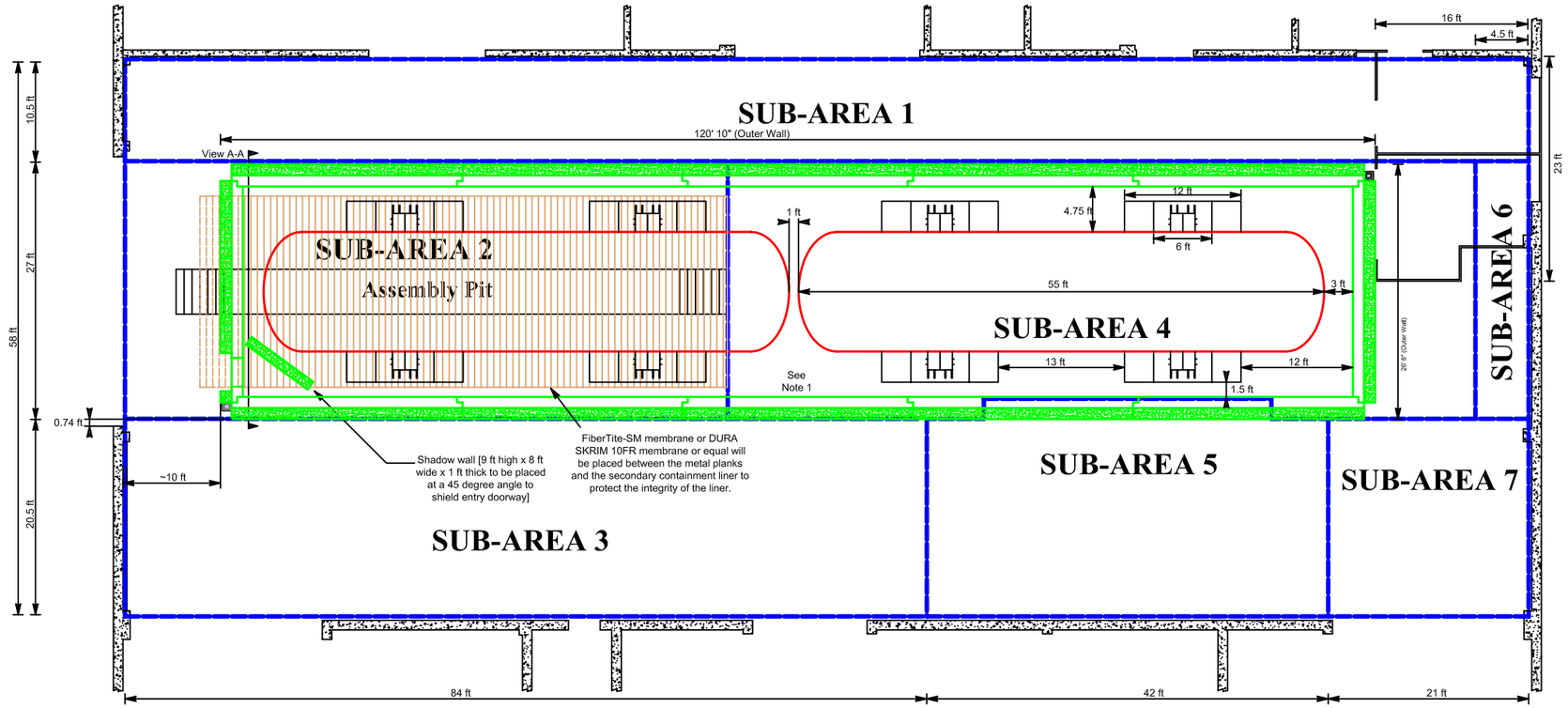
REVISION: 4
ORIGINAL SIGNED BY: Brady J. Orchard, PE
SEAL NUMBER: 10393
DATE ORIGINAL SIGNED: 06/02/04
ORIGINAL STORED AT: Portage Environmental, Inc; Idaho Falls, ID

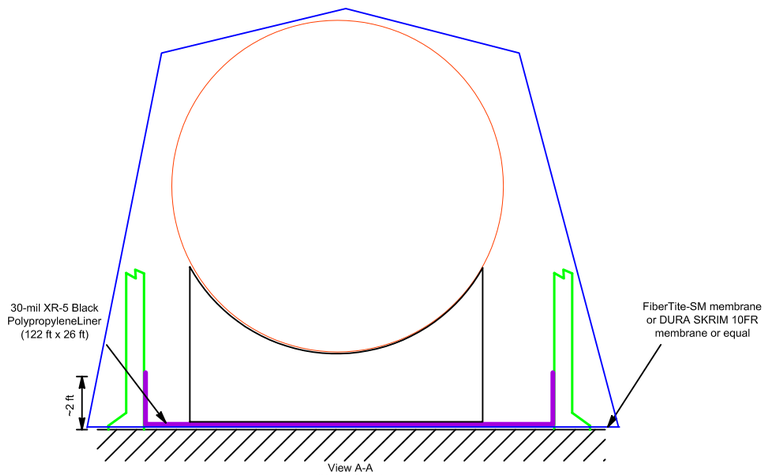
Portage ENVIRONMENTAL
IDAHO OPERATIONS OFFICE
P.O. BOX 3726
IDAHO FALLS, ID 83403
PHONE: 208.528.6608
FAX: 208.523.8860

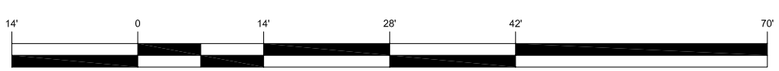
IDAHO COMPLETION PROJECT
TEST AREA NORTH/TECHNICAL SUPPORT FACILITY
PM-2A REMEDIATION PROJECT
TANK EXCAVATION PLAN

SHEET:	1 OF 1		SCALE:	SHOWN	
DESIGN:	B.J. ORCHARD	03/17/04	QA LEVEL:	Q	DWG SIZE: D
DRAWN:	B.D. WELTY	03/17/04	CONTRACT NO.	2073.00	
CHECKED:	J.A. TOWERS	03/17/04	DRAWING NUMBER:	P-FFA/CO-PM2A-001	REV 4
APPROVED:	B.J. ORCHARD	03/18/04			

TRUE PLANT







REVISIONS

REV	DESCRIPTION	EFFECTIVE DATE
1	UPDATED TO INCLUDE WALL PANEL DESCRIPTION	06/09/04

LEGEND

- BUILDINGS AND STRUCTURES
- SUB-AREA BOUNDARY (CONCRETE FLOOR LOADING)
- TUBE STEEL PLANK REINFORCEMENT (8" x 2" x 7/16" BY 20' LONG)
- TUBE STEEL PLANK REINFORCEMENT TO BE REMOVED AFTER TANK TRANSFER PRIOR TO SHIELD PLACEMENT
- PM-2A TANKS
- LINER
- REMOTE ACCESS CAMERA
- SHIELDING (14" THICK x 9' HEIGHT)

NOTES

1. SEE PEI-EDF-1005 FOR SHIELDING DETAILS

PROFESSIONAL ENGINEER REGISTERED 10393 STATE OF IDAHO BRADY J. ORCHARD

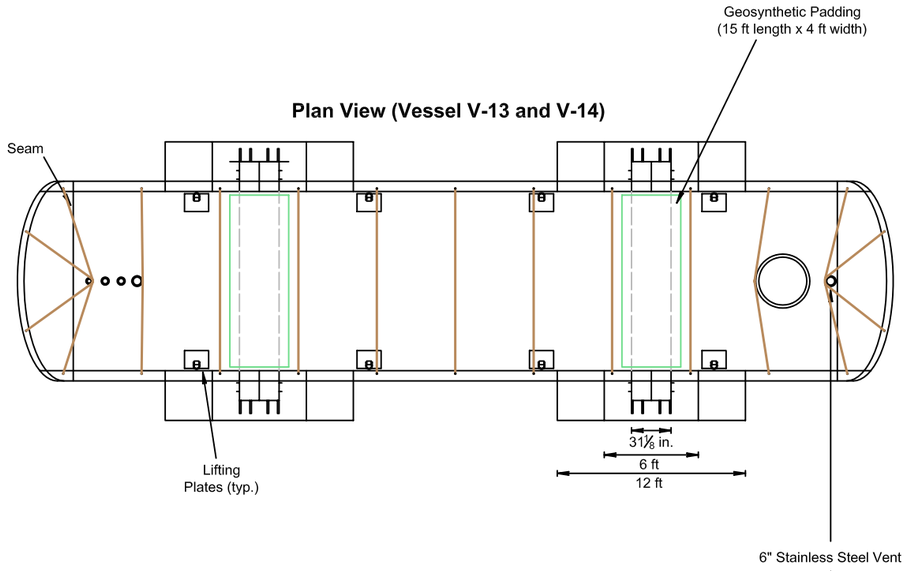
REVISION: 1
ORIGINAL SIGNED BY: Brady J. Orchard, PE
SEAL NUMBER: 10393
DATE ORIGINAL SIGNED: 5/21/04
ORIGINAL STORED AT: Portage Environmental, Inc.; Idaho Falls, ID

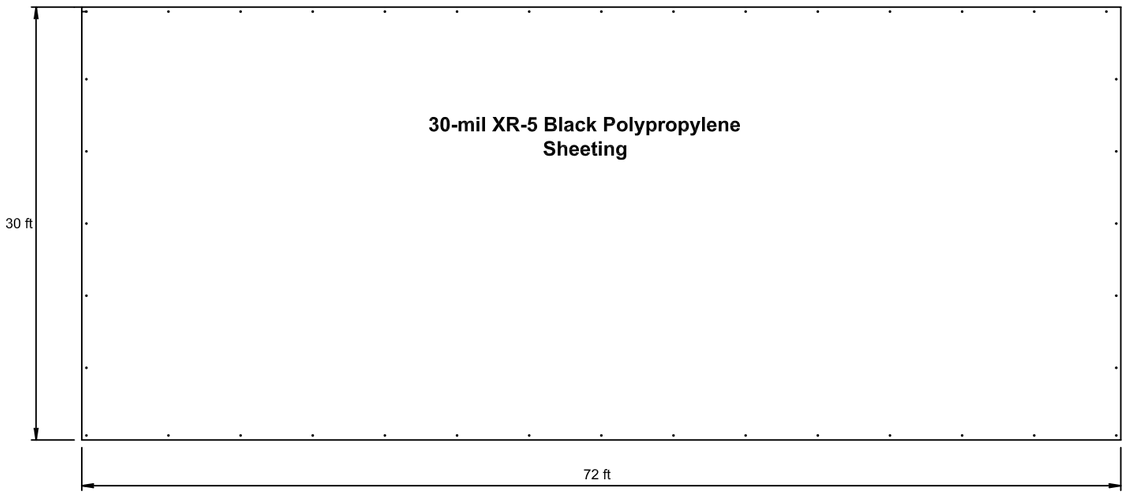
Portage ENVIRONMENTAL
IDAHO OPERATIONS OFFICE
P.O. BOX 3726
IDAHO FALLS, ID 83403
PHONE: 208.528.6608
FAX: 208.523.8860

IDAHO COMPLETION PROJECT
TEST AREA NORTH/TECHNICAL SUPPORT FACILITY
PM-2A REMEDIATION PROJECT
SECONDARY CONTAINMENT SYSTEM

SHEET:	1 OF 1	SCALE:	SHOWN		
DESIGN:	C. POTELUNAS	04/30/04	QA LEVEL:	Q	DWG SIZE: D
DRAWN:	M.P. LUNDELL	04/30/04	CONTRACT NO.:	2073.00	
CHECKED:	J. TOWERS	05/12/04	DRAWING NUMBER:	P-FFA/CO-PM2A-004	REV: 1
APPROVED:	B.J. ORCHARD	05/12/04			

REVISIONS		
REV	DESCRIPTION	EFFECTIVE DATE
1	REVISED INSTRUCTIONS	6/21/04





INSTRUCTIONS

1. FiberTite-SM membrane or DURA SKRIM 10FR membrane or equal will be placed between the metal planks and the secondary containment liner to protect the integrity of the liner.
2. Place one set of pads in each cradle using construction adhesive.
3. Center polypropylene sheeting on the cradles.
4. Place remaining three layer pads on each polypropylene-covered cradle using construction adhesive to place onto polypropylene lining.
5. Tie 60-ft lengths of rope to grommets on one side of sheeting and then loop the rope through the grommmets on opposite side of sheeting (long sides) until sheets have been secured with the rope. Throw ropes over tank, pass through respective loops, and throw back over tank. Pull ropes to raise sheeting and secure ropes to closest cradle support beam.

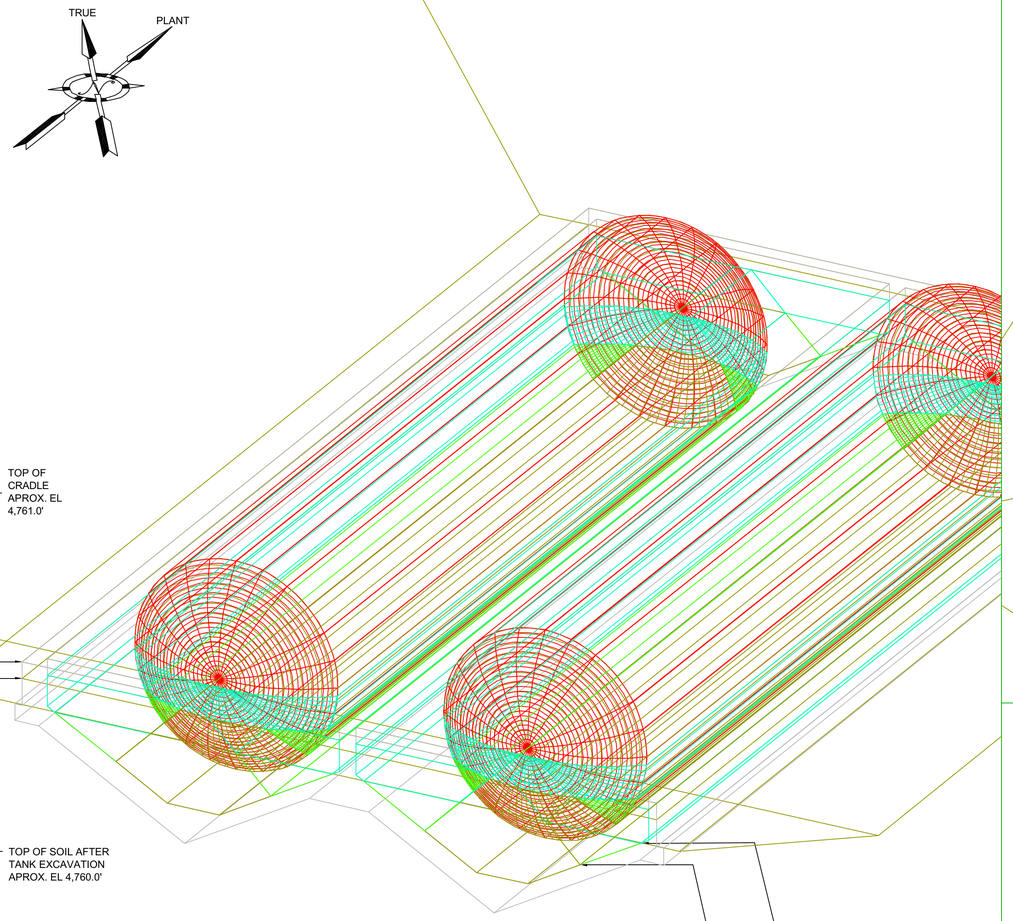
PROFESSIONAL ENGINEER
REGISTERED
10393
STATE OF IDAHO
BRADY J. ORCHARD

REVISION: 1
ORIGINAL SIGNED BY: Brady J. Orchard, PE
SEAL NUMBER: 10393
DATE ORIGINAL SIGNED: 6/21/04
ORIGINAL STORED AT: Portage Environmental, Inc.; Idaho Falls, ID

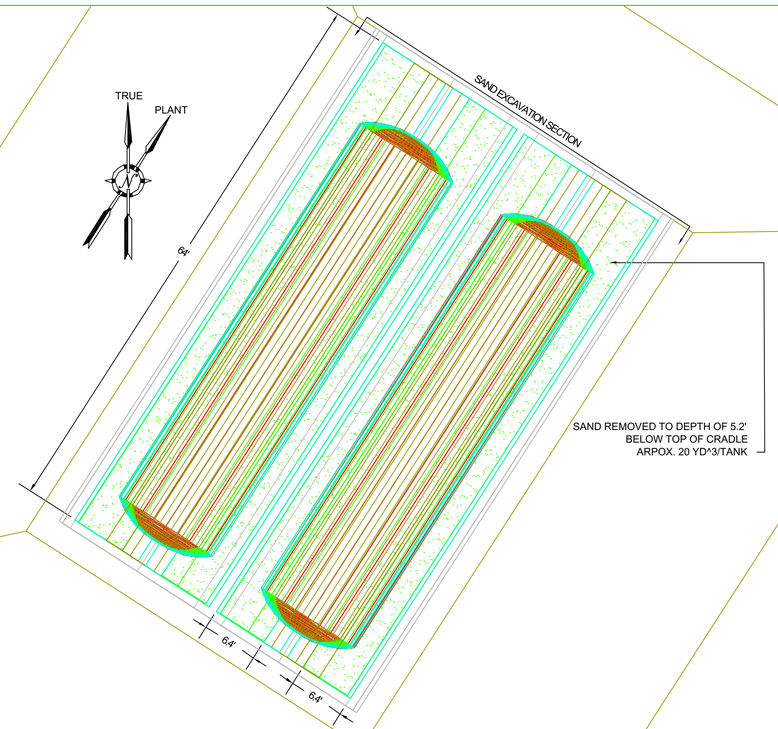
Portage ENVIRONMENTAL
IDAHO OPERATIONS OFFICE
P.O. BOX 3726
IDAHO FALLS, ID 83403
PHONE: 208.528.6608
FAX: 208.523.8860

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY
TEST AREA NORTH/TECHNICAL SUPPORT FACILITY
PM-2A POLYPROPYLENE SHEETING

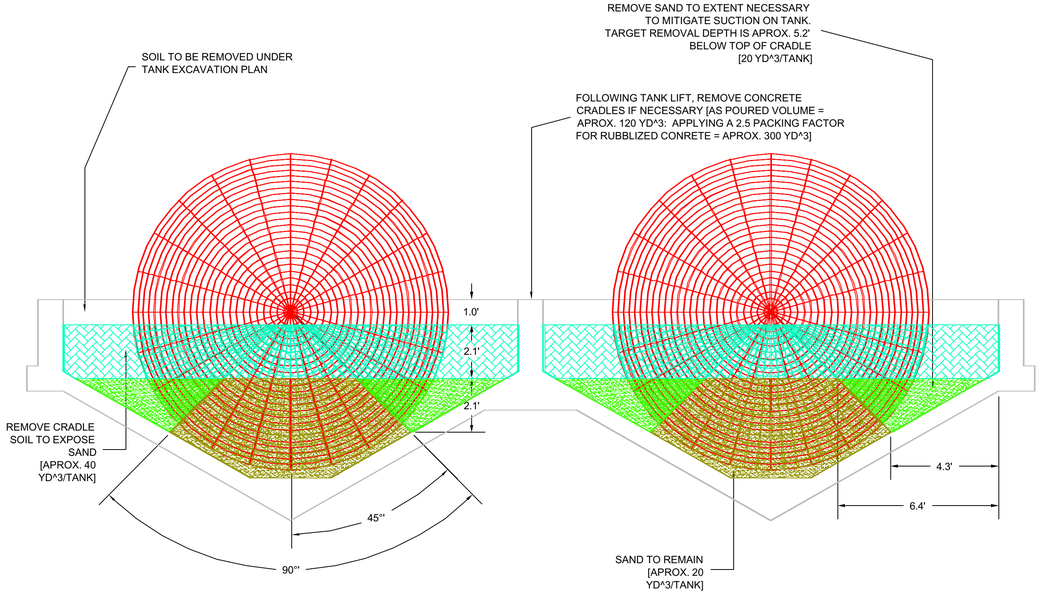
SHEET:	1 OF 1		SCALE:	NONE	
DESIGN:	C. POTELUNAS	04/23/04	QA LEVEL: Q	DWG SIZE:	B
DRAWN:	M.P. LUNDELL	04/27/04	CONTRACT NO.	2073.00	
CHECKED:	J. TOWERS	05/12/04	DRAWING NUMBER:		REV
APPROVED:	B.J. ORCHARD	05/12/04	P-FFA/CO-PM2A-005		1



SAND EXCAVATION ISOMETRIC FROM PLANT SOUTHEAST



SAND REMOVAL PLOT PLAN



SAND EXCAVATION SECTION FROM PLANT NORTH

PROFESSIONAL ENGINEER
REGISTERED
10393
STATE OF IDAHO
BRADY J. ORCHARD

REVISION: 0
ORIGINAL SIGNED BY: Brady J. Orchard, PE
SEAL NUMBER: 10393
DATE ORIGINAL SIGNED: 05/12/04
ORIGINAL STORED AT: Portage Environmental, Inc., Idaho Falls, ID

REVISIONS

REV	DESCRIPTION	EFFECTIVE DATE

NOTES

1. DIMENSIONS ARE APPROXIMATE AND WILL BE VERIFIED DURING FIELD ACTIVITIES.

Portage ENVIRONMENTAL
IDAHO OPERATIONS OFFICE
P.O. BOX 3726
IDAHO FALLS, ID 83403
PHONE: 208.528.6608
FAX: 208.523.8860

IDAHO COMPLETION PROJECT
TEST AREA NORTH/TECHNICAL SUPPORT FACILITY
PM-2A REMEDIATION PROJECT
SAND PAD REMOVAL PLAN, SECTION, AND ISOMETRIC

SHEET:	1 OF 1		SCALE:	SHOWN	
DESIGN:	B.J. ORCHARD	04/10/04	QA LEVEL:	Q	DWG SIZE: D
DRAWN:	B.D. WELTY	04/10/04	CONTRACT NO.	2073.00	
CHECKED:	J.A. TOWERS	04/11/04	DRAWING NUMBER:	P-FFA/CO-PM2A-006	REV 0
APPROVED:	B.J. ORCHARD	04/11/04			

TRUE PLANT

20' 0 20' 40' 60' 100'

EXISTING UNDERGROUND ELECTRICAL, ASSUMED DEPTH = 18" TO 3' BELOW EXISTING GRADE

12" TOP OF EXCAVATION TO BURIED ELECTRICAL LINE

EXISTING OVERHEAD UTILITIES

EXISTING FENCE

ASSUMED TOP OF SLOPE ELEVATION = 4,777' ALL SIDES (SEE EXC. NOTE 3)

3' SETBACK ON EAST, SOUTH, AND WEST SIDES

TYPICAL EAST, WEST, AND SOUTH SIDES 1.5:1 SLOPE

1:1 SLOPE, NORTH SIDE

4'

10'

10'

25'

10' [SEE NOTE 4]

28' [SEE NOTE 5]

6'

12.5'

7'

12.5'

NW

SW

NE

SE

19'

38'

20' [SEE NOTE 2]

CRANE [SEE NOTES 1 AND 3]

18'

CRANE MATS [SEE NOTE 4]

TAIL SWING BOUNDARY [SEE NOTE 2]

CRANE PAD

16'

58'

16'

EXCAVATED SOIL STOCKPILE
(SEE EXC. NOTES 8 AND 9)

TSF-1748

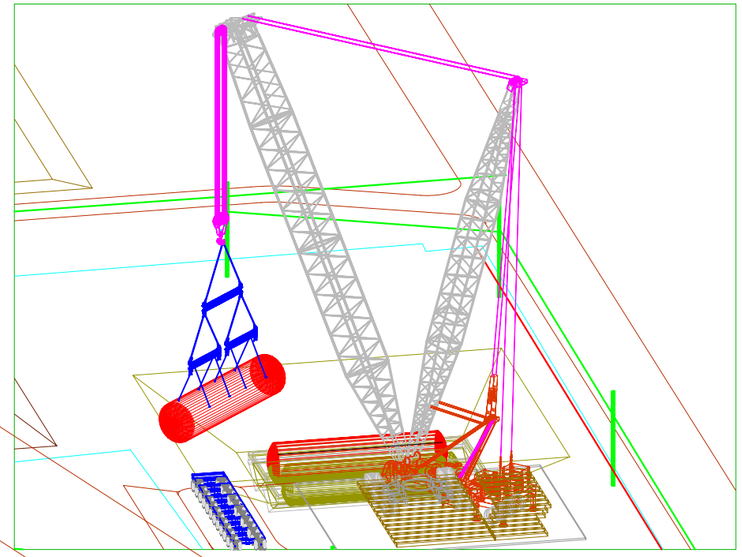
TRANSFER ROAD

WASTE STAGING/DECON AREA

SNAKE AVENUE

FIREHOLE ROAD

EXISTING OVERHEAD UTILITIES



REVISIONS

REV	DESCRIPTION	EFFECTIVE DATE

NOTES

1. CRANE SHALL BE A MANITOWOC MODEL 2250 WITH MAX-ER 2000.
2. AT NO TIME SHALL THE MAX-ER ASSEMBLY BE EXTENDED BEYOND THE TAIL SWING BOUNDARY, ENSURING THE MINIMUM DISTANCE BETWEEN THE CRANE AND EXISTING OVERHEAD ELECTRICAL UTILITIES IS MAINTAIN AT 20'.
3. CRANE SHALL BE PLACED WITH TRACKS PERPENDICULAR TO THE EXCAVATION SLOPE CREST.
4. CRANE MATS SHALL BE PLACED SUCH THAT A MINIMUM 10' SETBACK FROM THE EXCAVATION SLOPE CREST IS MAINTAINED.
5. CRANE SHALL BE PLACED SUCH THAT THE MINIMUM DISTANCE FROM THE CRANE PIVOT POINT TO THE EXCAVATION SLOPE CREST SHALL BE 20'

ALL DIMENSIONS ARE APPROXIMATE AND WILL BE VERIFIED DURING FIELD OPERATIONS

SPECIFICATIONS FOR CRANE PAD, TRANSPORT ROAD, AND TANK EXCAVATION ARE PROVIDED ON DRAWING P-FFA/CO-PM2A-001.

PRELIMINARY CONTROL COORDINATES

TOE OF EXCAVATION SLOPE
NW (X,Y,Z) - 357375, 795676, 4760
SW (X,Y,Z) - 357338, 795619, 4760
SE (X,Y,Z) - 357375, 795594, 4760
NE (X,Y,Z) - 357403, 795649, 4760

CRANE PAD
NW (X,Y,Z) - 357443, 795641, 4777
SW (X,Y,Z) - 357402, 795579, 4777
SE (X,Y,Z) - 357457, 795543, 4777
NE (X,Y,Z) - 357497, 795606, 4777

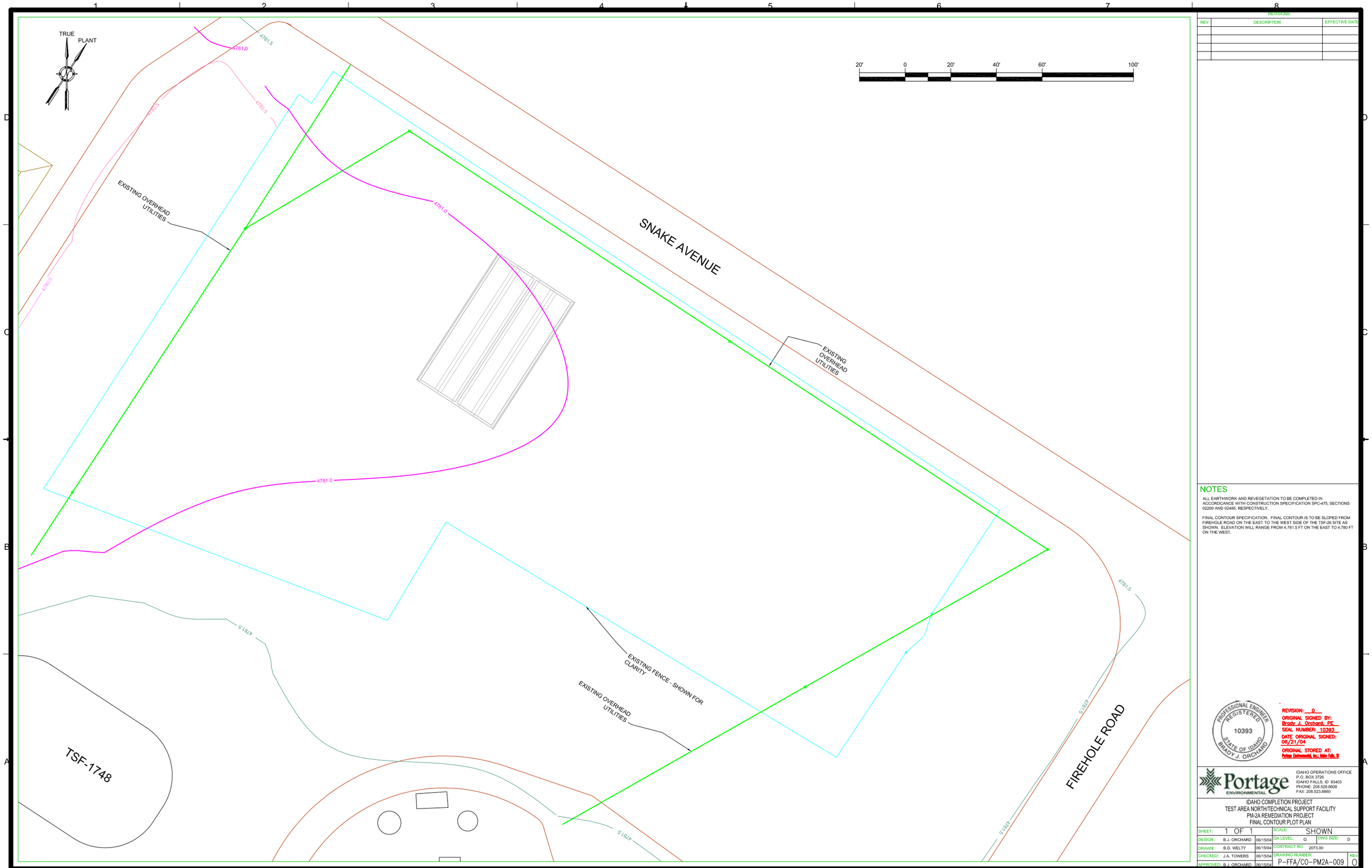
PROFESSIONAL ENGINEER REGISTERED 10393 STATE OF IDAHO BRADY J. ORCHARD

REVISION: 3
ORIGINAL SIGNED BY: Brady J. Orchard, PE
SEAL NUMBER: 10393
DATE ORIGINAL SIGNED: 04/29/04
ORIGINAL STORED AT: Portage Environmental, Inc.; Idaho Falls, ID

Portage ENVIRONMENTAL
IDAHO OPERATIONS OFFICE
P.O. BOX 3726
IDAHO FALLS, ID 83403
PHONE: 208.528.6608
FAX: 208.523.8860

IDAHO COMPLETION PROJECT
TEST AREA NORTH/TECHNICAL SUPPORT FACILITY
PM-2A REMEDIATION PROJECT
CRANE PAD ARRANGEMENT PLOT PLAN

SHEET:	1 OF 1		SCALE:	SHOWN	
DESIGN:	B.J. ORCHARD	05/12/04	QA LEVEL:	Q	DWG SIZE: D
DRAWN:	B.D. WELTY	05/12/04	CONTRACT NO.:	2073.00	
CHECKED:	J.A. TOWERS	05/12/04	DRAWING NUMBER:	P-FFA/CO-PM2A-008	REV: 0
APPROVED:	B.J. ORCHARD	05/12/04			



REVISIONS

REV	DESCRIPTION	EFFECTIVE DATE

NOTES

ALL EARTHWORK AND REVEGETATION TO BE COMPLETED IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION SPC-475, SECTIONS 02200 AND 02486, RESPECTIVELY.

FINAL CONTOUR SPECIFICATION. FINAL CONTOUR IS TO BE SLOPED FROM FIREHOLE ROAD ON THE EAST TO THE WEST SIDE OF THE TSF-26 SITE AS SHOWN. ELEVATION WILL RANGE FROM 4,781.5 FT ON THE EAST TO 4,780 FT ON THE WEST.

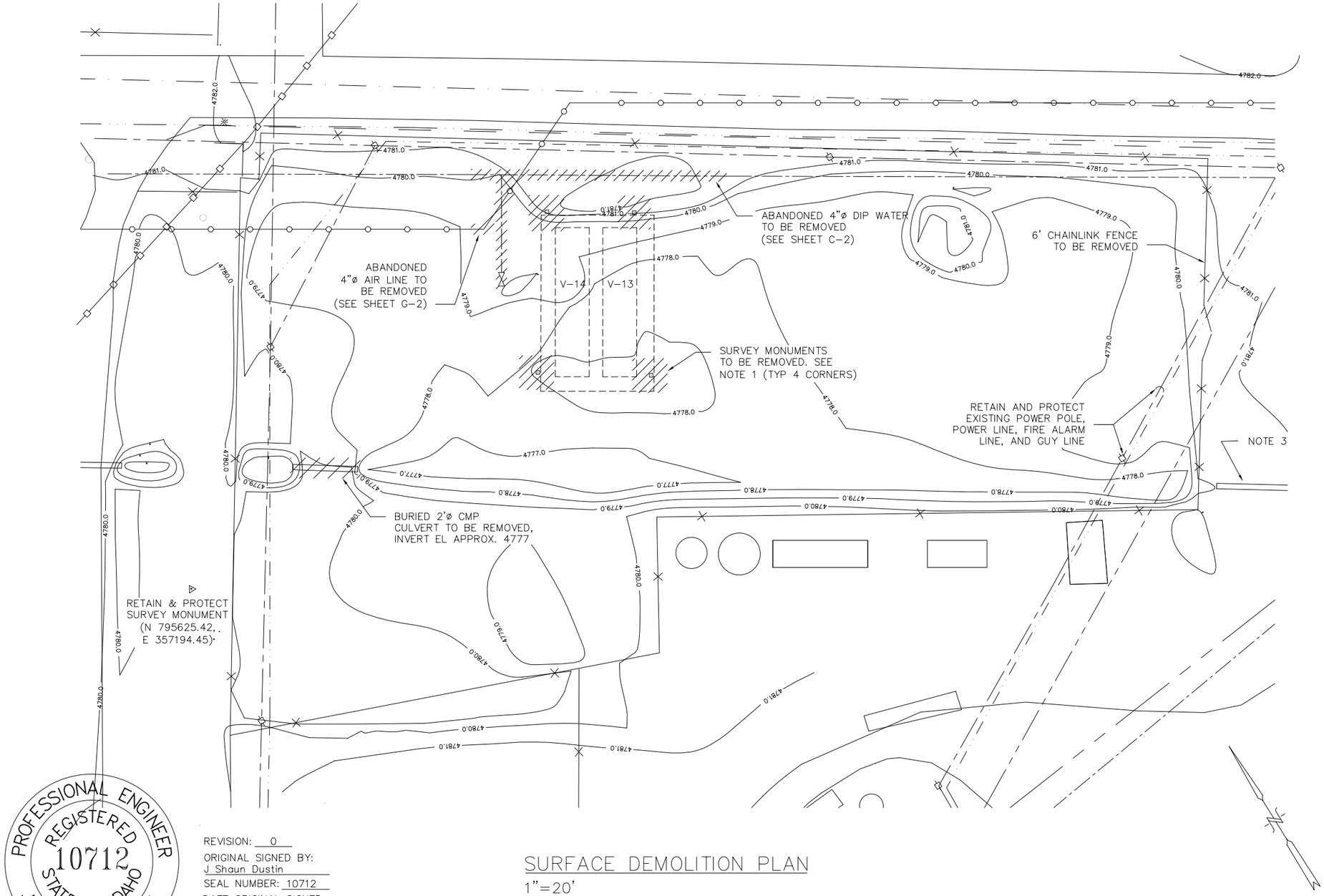
PROFESSIONAL ENGINEER REGISTERED 10393 STATE OF IDAHO BRADY J. ORCHARD

REVISION: 0
ORIGINAL SIGNED BY: Brady J. Orchard, PE
SEAL NUMBER: 10393
DATE ORIGINAL SIGNED: 06/21/04
ORIGINAL STORED AT: Portage Environmental, Inc; Idaho Falls, ID

Portage ENVIRONMENTAL
IDAHO OPERATIONS OFFICE
P.O. BOX 3726
IDAHO FALLS, ID 83403
PHONE: 208.528.6608
FAX: 208.523.8860

IDAHO COMPLETION PROJECT
TEST AREA NORTH/TECHNICAL SUPPORT FACILITY
PM-2A REMEDIATION PROJECT
FINAL CONTOUR PLOT PLAN

SHEET:	1 OF 1		SCALE:	SHOWN	
DESIGN:	B.J. ORCHARD	06/15/04	QA LEVEL: Q	DWG SIZE: D	
DRAWN:	B.D. WELTY	06/15/04	CONTRACT NO.: 2073.00		
CHECKED:	J.A. TOWERS	06/15/04	DRAWING NUMBER: P-FFA/C0-PM2A-009		REV: 0
APPROVED:	B.J. ORCHARD	06/15/04			



SURFACE DEMOLITION PLAN

1"=20'

REV	DATE	DESCRIPTION	DESIGN	APP'D BY

NOTES

1) WHERE SURVEY MONUMENTS ARE SCHEDULED FOR DEMOLITION MAINTAIN REFERENCE STAKING TO PERMIT REESTABLISHMENT OF MONUMENTS.

2) RETAIN AND PROTECT ALL EXISTING INFRASTRUCTURE NOT SPECIFICALLY SLATED FOR DEMOLITION.

3) PLUG UPSTREAM SIDE OF CULVERT TO PREVENT OFFSITE STORMWATER RUNOFF FROM ENTERING WORK AREA DURING CONSTRUCTION.

SCALE: AS NOTED

PROFESSIONAL ENGINEER
REGISTERED
10712
STATE OF IDAHO
J. SHAUN DUSTIN

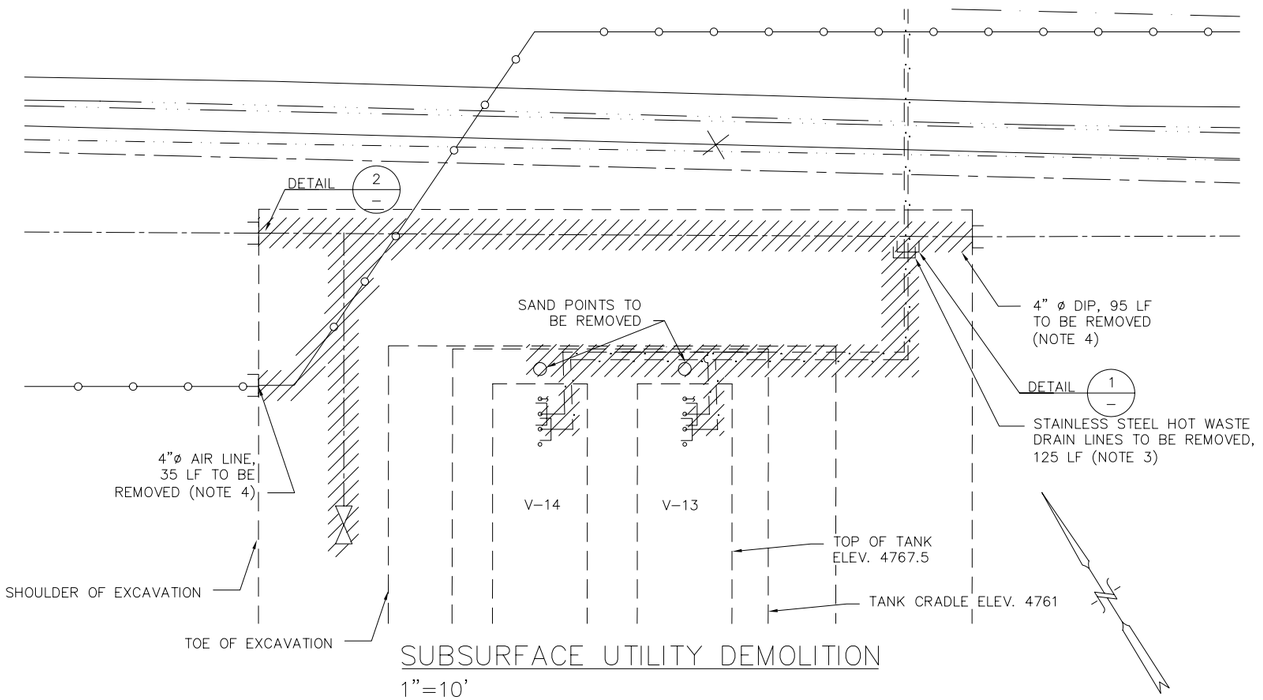
REVISION: 0
ORIGINAL SIGNED BY: J Shaun Dustin
SEAL NUMBER: 10712
DATE ORIGINAL SIGNED: 12/3/2003
ORIGINAL STORED AT: Intrepid Technology & Resources

OU 1-10 TSF-26 SURFACE DEMOLITION PLAN

intrepid technology & resources incorporated
501 W. BROADWAY, SUITE 200, IDAHO FALLS, ID 83402
(208)529-5337 FAX: (208)529-1014

C-1

DRAWN: JSD	12/3/03	TASK ORDER NUMBER	
DESIGNED: JSD	12/3/03	2000-096	
CHECKED: GDM	12/3/03	QA LEVEL: CG	DWG SIZE: D
APPROVED: GDM	12/3/03	DRAWING NUMBER	REV
CADD FILE: 10355_0.DWG		10355	0



SUBSURFACE UTILITY DEMOLITION

1"=10'

NOTES

1) WHERE SURVEY MONUMENTS ARE SCHEDULED FOR DEMOLITION MAINTAIN STAKING TO PERMIT LOCATION OF ASSUMED TANK CRADLE CORNERS UNTIL CORNERS ARE EXPOSED.

2) RETAIN AND PROTECT ALL EXISTING INFRASTRUCTURE NOT SPECIFICALLY SLATED FOR DEMOLITION ON THIS SHEET.

3) CUT, PLUG AND CAP HOT WASTE LINES AT EDGE OF FINAL EXCAVATION WALL AS SHOWN. CAPS SHALL BE FABRICATED FROM 3/16" WALL STAINLESS STEEL. EXACT HOT WASTE LINE DIAMETER AND LOCATION ARE UNKNOWN. HAND OR VACUUM EXCAVATE TEST PITS FROM ELEVATION 4773 TO EXPOSE AND POSITIVELY LOCATE HOT WASTE LINES. WHEN HOT WASTE LINE LOCATION AND DEPTH ARE ESTABLISHED MARK LOCATION AND MAINTAIN MARKINGS UNTIL CUTTING, CAPPING, AND REMOVAL OPERATIONS ARE COMPLETE. HAND EXCAVATE WITHIN 3 FEET OF ESTABLISHED HOT WASTE LINE LOCATIONS TO COMPLETELY EXPOSED PORTIONS SCHEDULED FOR DEMOLITION.

4) REMOVE WATER AND AIR LINES AS REQUIRED TO COMPLETE TANK EXCAVATION. ACTUAL PIPE SECTIONS TO BE REMOVED ARE TO BE DETERMINED IN THE FIELD BY PIPE LOCATION AND EXCAVATION FOOTPRINT. CUT AND CAP LINES AT EDGE OF FINAL EXCAVATION. BOTH AIR AND WATER LINES ARE ABANDONED, AND NO SPECIAL PRECAUTIONS NEED TO BE TAKEN WITH REGARD TO EXPOSING THE LINES. PLUG ABANDONED WATER AND AIR LINES BY CUTTING THEM CLEANLY WITH A HOT SAW, THEN INSTALLING MECHANICALLY EXPANDED RUBBER PLUGS PER PLUG MFG. INSTRUCTIONS. ASSUMED WATER LINE ELEVATION: 4775; ASSUMED AIR LINE ELEVATION: 4777.

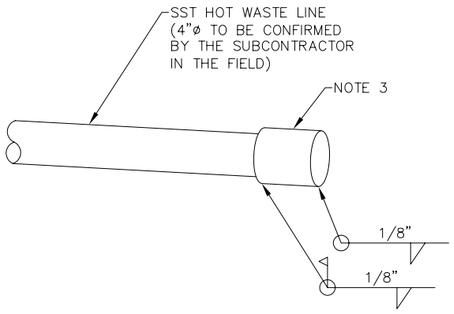
REV	DATE	DESCRIPTION	DESIGN	APP'D BY

NOTES

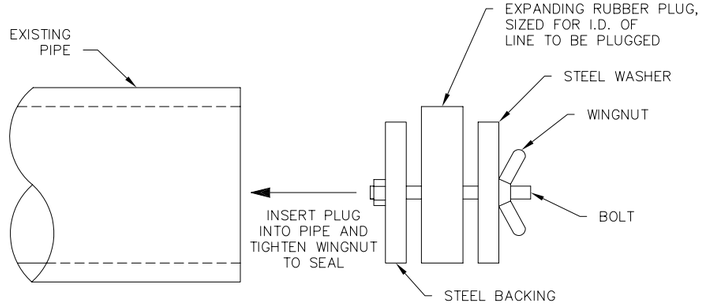
SCALE: AS NOTED

REVISION: 0
ORIGINAL SIGNED BY: J Shaun Dustin
SEAL NUMBER: 10712
DATE ORIGINAL SIGNED: 12/3/2003
ORIGINAL STORED AT: Intrepid Technology & Resources

PROFESSIONAL ENGINEER REGISTERED 10712 STATE OF IDAHO J. SHAUN DUSTIN



SST HOT WASTE LINE CAP 1
TYP SIX LOCATIONS
NTS



RUBBER PIPE PLUG 2
TYP 4 LOCATIONS
NTS

OU 1-10 TSF-26 SUBSURFACE DEMOLITION PLAN

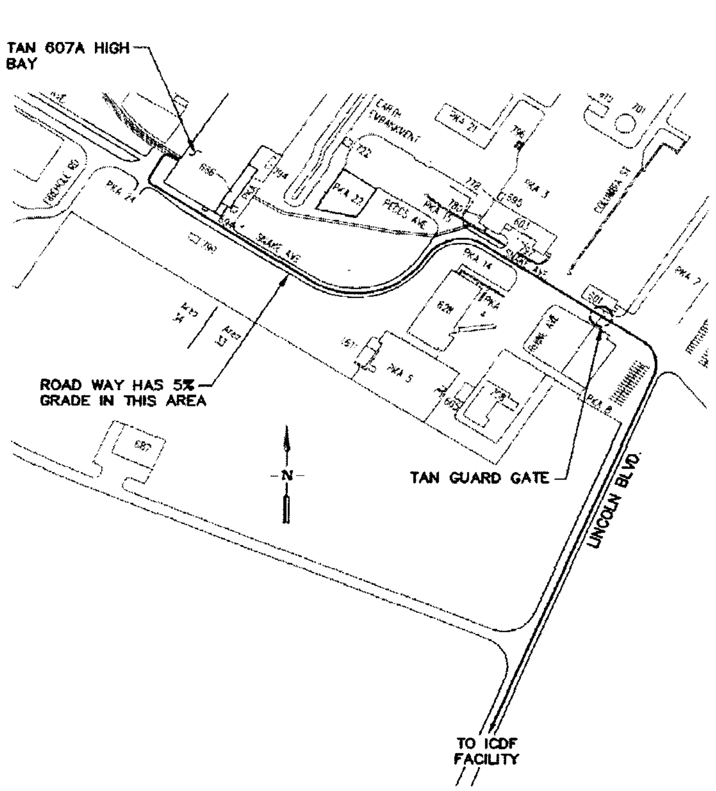
intrepid technology & resources incorporated
501 W. BROADWAY, SUITE 200, IDAHO FALLS, ID 83402
(208)529-5337 FAX: (208)529-1014

C-2

DRAWN: JSD	12/3/03	TASK ORDER NUMBER	
		2000-096	
DESIGNED: JSD	12/3/03	QA LEVEL: CG	DWG SIZE: D
CHECKED: GDM	12/3/03		
APPROVED:GDM	12/3/03	DRAWING NUMBER 10356	REV 0
CADD FILE:10356_0.DWG			

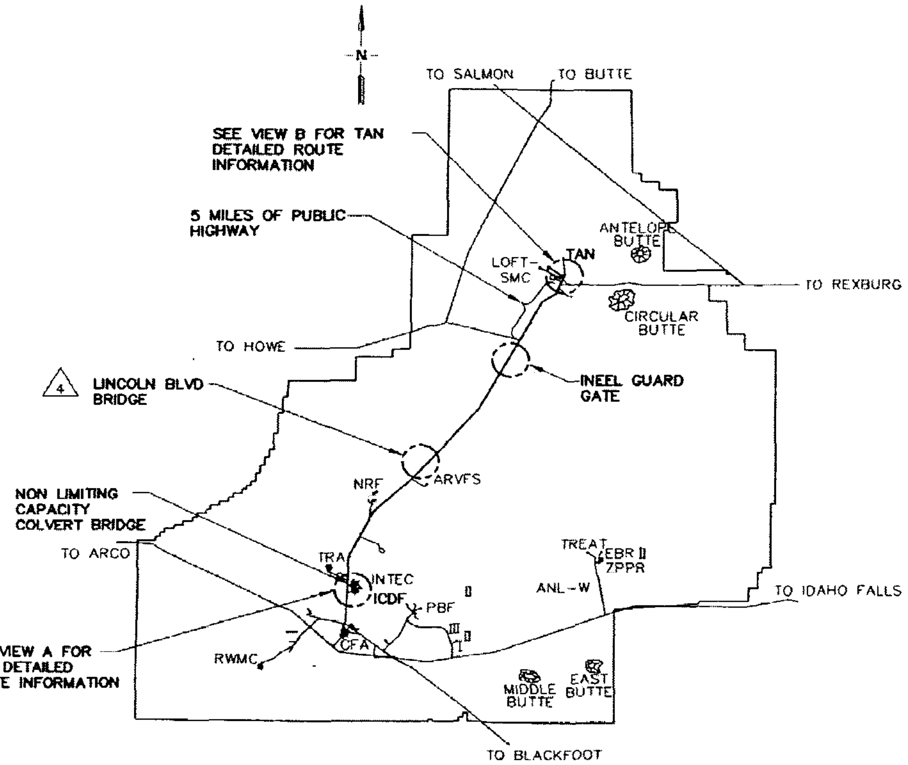
NOTES:

1. FOR THE DETAILED PM-2A TANKS INEEL TRANSPORT PLAN SEE PLN-1787.
2. FOR THE DETAILED PM-2A TANKS ICDF PLACEMENT PLAN AND LOADED TRANSPORTER WEIGHTS SEE EDF-5246.
3. FOR OVERHEAD CLEARANCE EVALUATION FROM TAN 607 TO INTEC SEE EDF-3717.
4. MAXIMUM BRIDE LOADING AT LINCOLN BLVD BRIDGE IS 160,000 LB. ON 12' X 18' AREA WITH 780 LB/IN OF TIRE WIDTH. SEE EDFS-4646, 4647, AND INEEL DRAWING 152568.

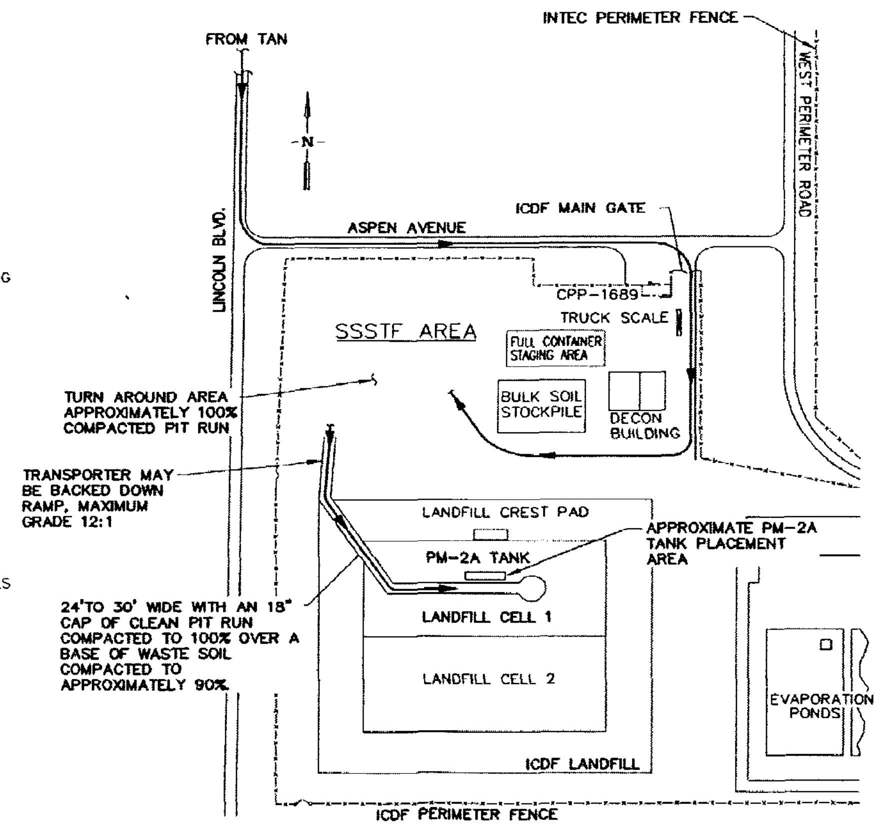


VIEW B
TAN ROUTE MAP
SCALE: 1"=200.0'

HORIZONTAL DATUM BASED ON SITE SPECIFIC COORDINATES



INEEL SITE MAP
SCALE: NONE



VIEW A
ICDF ROUTE MAP
SCALE: 1"=200.0'

HORIZONTAL DATUM BASED ON SITE SPECIFIC COORDINATES

FOR DRAWING INDEX SEE DRAWING NO. N/A	SUBCONTRACT NO N/A	INEEL BECHTEL BWXT IDAHO, LLC
SCALE: 1" = 200.0'	REQUESTER: B. ROZACK	INEEL CERCLA DISPOSAL FACILITY (ICDF)
	DESIGN: F.J. RIOS	PM-2A TANKS TO ICDF TRANSPORTATION ROUTE
	DRAWN: E.L. TOMLIN	
	PROJECT NO. 23095	
	SPEC CODE	
DESIGN PHASE: AFC	FOR REVIEW/APPROVAL SIGNATURES SEE DAR NO. 115665	SIZE D; CAGE CODE 01MF3; INDEX CODE NUMBER AREA 200, TYPE 0100, CL 02, ORIG 090; DWG-628850; REV
SAFETY CATEGORY: CG	EFFECTIVE DATE: 10/13/2004	SCALE: NOTED; SHEET 1 OF 1

REV	DESCRIPTION	EFFECTIVE DATE

Date: 10/13/04 - 07:30 A.M. | Layout Name: Layout1 | ID: TOMLEL
File: 628850.dwg

Attachment 2

PM-2A Tanks Design Specifications

CONTENTS

SECTION 01051--CONSTRUCTION SURVEYING AND STAKING

PART 1--GENERAL

SUMMARY:

Section Includes: Work includes, but is not limited to:

The subcontractor will furnish all materials, labor, tools, and equipment to perform surveying. The subcontractor will perform surveying to ensure that the proper grades, lines, and levels are established as set forth in these specifications and as shown on the design drawings. The construction survey will be completed under the supervision of a Registered Professional Land Surveyor licensed in the State of Idaho.

Related Sections:

a) Section 02140, Temporary Diversion and Control of Water During Construction
b) Section 02200, Earthwork
c) Section 02430, Storm Drain
d) Section 02486, Revegetation

Work to be Performed by Others:

The Contractor will:

a) Review and approve data submittals as required by this specification
b) Provide INEEL survey grid information
c) Provide benchmarks, strategically located, as shown on design drawings
d) Inspect work for compliance with this specification, in addition to inspection by the subcontractor.
e) Perform final inspection and acceptance of water diversion and control work.

SUBMITTALS:

Procedures:

a) The subcontractor will submit within eight work days after notice to proceed, a plan for the work, including descriptions of survey equipment, procedures used to establish temporary or permanent benchmarks or measurements, field notes, calculations, reductions, closures, and documentation for any benchmarks or monuments to the contractor for approval.
b) Data will be reduced and plotted by the subcontractor in a form acceptable to the contractor. Legible notes, drawings, and reproducible documentation will be submitted to the contractor for approval. Contour intervals will be 0.5 feet. In addition to the above notes submittals, all plans will also be submitted in ASCII (data) and AutoCAD 2002 (drawings) formats on CD-ROM.

Certifications:

a) Provide evidence of surveyor's current registration in the State of Idaho.
b) Prior to grading or placing fill at the site, the subcontractor will perform a survey of the existing subgrade, if necessary, to confirm to his satisfaction the adequacy of the existing topography as shown on the drawings. The Subcontractor will submit a letter to the contractor stating acceptance of the accuracy of the existing topography shown on the contract drawings, or will otherwise advise of discrepancies or omissions for further resolution. Construction work in each respective area will not begin until agreement is reached on the adequacy of the existing topographic information.

Records: The subcontractor will submit to the contractor for information, all field notes from surveying and layout activities within four work days after completion of each stage of these activities at each respective site.

QUALITY CONTROL:
Qualifications: Construction surveying and staking shall be accomplished under the direction of a registered professional land surveyor licensed in the State of Idaho.

PART 2--PRODUCTS

Stakes: Identification stakes and hubs shall be of sufficient length, width and depth to provide a solid set in the ground and to provide space for marking above ground when applicable. The top 2-in. of all slope, guard, reference, clearing, and structure stakes shall be painted or marked with plastic flagging.

Monuments: Permanent monuments shall be supplied and placed in accordance with applicable INEEL, State and Federal standards as shown in the drawings.

PART 3--EXECUTION

SURVEY REQUIREMENT:
Precision: Precision and accuracy requirements are contained in Table 1. Precision B shall be used.

Control: Prior to commencement of construction work, the subcontractor will establish survey control points inside the work areas. Survey control points will be established so that any point within the job site can be accurately reestablished and elevations be obtained to the required tolerances at any time during the construction. The subcontractor will verify all baselines, and horizontal and vertical control benchmarks stipulated in the information provided by the contractor.

Slope Stakes, Clearing Limits and Reference Stakes: Slope catch-points, clearing limits, and slope reference stakes shall be established. The position of these stakes shall be determined by methods that will produce on the ground the precisions shown in the Table 1.

Clearing limits shall be set within the tolerance shown in the Table 1. The clearing limit shall be located on the ground and marked with lath, flagging, or other methods approved by the Contractor's Representative.

The elevation and location of slope reference stakes shall be verified for accuracy by a differential level run over the reference stakes between benchmarks.

Monuments of Property Boundaries or Surveys of Other Agencies: If property boundary or survey monuments, or survey markers of other agencies, are found within or adjacent to the construction limits, the Subcontractor shall immediately notify the Contractor's Representative. These monuments shall not be disturbed. If disturbance is necessary to complete the work, monuments shall be reestablished to the original coordinates prior to final completion. The exception is the four known and previously disturbed monuments over the PM-2A tank cradle. These monuments are to be surveyed to permit reestablishment of the corners they mark for reference during excavation, and disposed of in accordance with section 02200 of these specifications.

Grade Finishing Stakes: Stakes shall be set on a 50-ft grid and at the shoulders. Subgrade finishing stakes shall be red tops and finish grade stakes shall be blue tops.

Finishing stakes shall be set when subbase is within 0.2 ft, or topsoil is within 0.1 ft of final grade. The stakes shall be set to the nearest 0.01 ft of the measured grade line.

TABLE 1. CROSS SECTION AND SLOPE-STAKE PRECISION

Item	Precision		
	A	B	C
Allowable deviation of cross section line projection from a true perpendicular to tangents, a true dissector of angle points, or a true radius of curves.	±2_	±3_	±3_
Cross section topography measurements shall be taken so that variations in ground from a straight line connecting the cross section points will not exceed:	0.5 ft	1.0 ft	2.0 ft
Horizontal and vertical accuracy for cross sections. In feet or percentage of horizontal distance measured from transverse line, whichever is greater.	.05 ft or 0.2%	0.15 ft or 0.6%	0.2 ft or 1.0%
Horizontal and vertical accuracy for slope stake, slope stake references, and clearing limits. In feet or percentage of horizontal distance measured from centerline or reference stake, whichever is greater.			
a. Slope reference stakes and slope stakes.	0.1 ft or 0.4%	0.15 ft or 0.6%	0.2 ft or 1.0%
b. Clearing limits.	1.0 ft	1.0 ft	1.0 ft

FIELD QUALITY CONTROL:
The subcontractor is responsible for controlling lift thickness to ensure conformance to the required dimensions. The subcontractor will be responsible for establishing, recording, protecting, and maintaining all permanent and temporary horizontal and vertical control benchmarks.

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 01051

SECTION 02140—TEMPORARY DIVERSION AND CONTROL OF WATER DURING CONSTRUCTION

PART 1--GENERAL

SUMMARY:

Section Includes: Work includes, but is not limited to:

Furnishing of all materials, labor, tools, and equipment for dewatering work areas and controlling surface water prior to and throughout construction operations. Control measures implemented may include berms, swales, ditches, temporary piles, portable pumps, silt fences, sediment traps, or any other measure approved by the contractor in accordance with this specification and as shown on the design drawings.

Related Sections:

a) Section 02200, Earthwork
b) Section 02430, Storm Drain

Work to be Performed by Others:

The Contractor will:

a) Review and approve data submittals as required by this specification
b) Inspect work for compliance with this specification and the design drawings, in addition to inspection by the subcontractor. The contractor will review pre-placement conditions, placement of controls, and other job conditions during performance of the work.
c) Perform final inspection and acceptance of water diversion and control work.

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein.

a) Health and Safety Plan (HASP) for the Remedial Action Waste Group 3, Operable Unit 1-10
b) Comprehensive Remedial Design/Remedial Action Work Plan for the Test Area North Operable Unit 1-10, Selected Sites

SUBMITTALS:

Procedures: Storm water control procedure and dust control procedures shall be submitted for approval prior to the start of the work detailing the subcontractor's proposed storm water control measures. The procedures must meet the requirements specified in the project Environmental Checklist and shall be approved by the contractor and implemented as approved before excavation may begin, and shall comply with the preliminary grading plan shown in the drawings.

Records: The Subcontractor will submit all records of inspection to the contractor within four work days after completion of the inspection.

PART 2--PRODUCTS

EQUIPMENT:

a) All equipment and tools will conform to the safety requirements of the Project Health and Safety Plan (HASP)
b) All equipment and tools used by the subcontractor to perform the work will be subject to inspection by the contractor before the work is started and will be maintained in satisfactory

working condition at all times.

c) The subcontractor's equipment and work will be adequate and capable of controlling water prior to and throughout construction as required by this specification and the design drawings.

MATERIALS:

a) All materials will be furnished by the subcontractor and will be subject to approval by the contractor

b) Selection of materials used for controlling storm water are the responsibility of the subcontractor, but will follow the intent of the Storm Water Pollution Prevention Plan and be approved by the contractor.

PART 3--EXECUTION

GENERAL:

a) All standing water outside the construction boundary may be left to infiltrate the soil.

b) The subcontractor will perform all construction work in areas free of standing water. Suitable water control measures will be constructed at all locations where construction work may be affected by ponded storm water at the time of work.

c) The subcontractor will divert surface water around the periphery of all construction areas by applying the preliminary grading plan as outlined in the drawings.

d) The subcontractor will be solely responsible for the protection of work against damage, delay, or environmental impact by water flow.

e) The subcontractor will direct and control water in a manner that protects adjacent structures and facilities.

f) The subcontractor will ensure that existing storm drain entering the site from the east is plugged during construction activities until the new storm drain is complete and accepted.

g) The Subcontractor will at all times minimize the creation and emission of dust. The subcontractor will employ means such as water spray and visual observation to control and minimize dust. The source of water for dust suppression will be the TAN fire water system. The Subcontractor shall supply appropriate equipment for water delivery, storage, and application.

WORK IN EXTREME WEATHER:

In the event of extreme storm activity, the subcontractor will provide protective measures to prevent damage to the work by run-on and maintain control of the run-off from the constructed areas. During extreme storm events, the subcontractor will protect slopes by methods approved by the contractor. Prior to re-starting work after an extreme storm event, the subcontractor will inspect and clean out all temporary control structures of debris and sediment buildup, and repair or replace any damaged areas either in the temporary control structures or in the permanent work areas as approved by the contractor.

INSPECTIONS AND REPAIRS:

a) The subcontractor will inspect temporary water control structures and materials on a daily basis and will record inspection findings in the daily work log. The inspection records will be submitted weekly to the contractor.

b) The subcontractor will remove debris and sediment build-up from the temporary control structures as required to maintain the intended flow path.

c) Should overflow or breach conditions be encountered or any other damage observed at the temporary structures, repair and/or replacement of the damaged area will be promptly performed

by the subcontractor.

d) Acceptance criteria for repaired and/or replaced temporary water control structures will be in accordance with the requirements of this specification.

REMOVAL OF TEMPORARY CONTROL MEASURES:

Temporary storm water control measures will be removed once the work has been completed and as directed by the contractor. The subcontractor will properly dispose of the materials removed as directed by the contractor. All areas where temporary control structures are removed will be regraded and revegetated in accordance with Sections 02200 and 02930 of these specifications.

ACCEPTANCE:

The subcontractor will submit a description of any repair or replacement work required to the contractor prior to implementation. Acceptance criteria for repaired or replaced water control measures will be in accordance with the original requirements of this specification.

END OF SECTION 02140

SECTION 02200--EARTHWORK

PART 1--GENERAL

SUMMARY:

Section Includes: Work includes, but is not limited to:

1. Clearing and grubbing as required.
2. Excavating all materials encountered, of every description, for completion of the Subcontract as shown on the drawings and as specified herein.
3. Backfilling of all excavation for TSF-26, and for footings, foundations, pipe and utility trenches, etc.
4. Compacting all backfill and sub-grade as specified herein.
5. Finish grading and grading for surface drainage.

Related Sections:

a) Section 01051 – Construction Surveying and Staking
b) Section 02140 – Temporary Diversion and Control of Water during Construction
c) Section 02430 – Storm Drain
d) Section 02486 – Revegetation

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein.

AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO)

AASHTO	Standard Specifications for Transportation Materials and Methods of Sampling and Testing
AASHTO M145	Recommended Practice for the Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
AASHTO M288	Standard Specification for Geotextile Specification for Highway Applications
AASHTO T11	Standard Method of Test for Materials Finer Than 75 Micrometer (No. 200) Sieve in Mineral Aggregates by Washing
AASHTO T27	Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates
AASHTO T99	Standard Method of Test for the Moisture-Density Relations of Soils Using a 5.5 lb Rammer and a 12 in. Drop
AASHTO T238	Standard Method of Test for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

CODE OF FEDERAL REGULATIONS

29 CFR 1926	OSHA Safety and Health Regulations for Construction, Subpart P
49 CFR 173	DOT Shippers-General Requirements for Shipments and Packagings

US DEPARTMENT OF ENERGY

DOE/ID-01-10381	Idaho National Engineering and Environmental Laboratory Waste Acceptance Criteria
DOE/ID-10865	Waste Acceptance Criteria for ICDF Landfill
DOE/ID-10881	ICDF Complex Waste Acceptance Criteria

IDAHO TRANSPORTATION DEPARTMENT (ITD)

SSHC	Standard Specification for Highway Construction

SUBMITTALS:

For approval prior to purchase:

Proposed waste packaging materials, including manufacturer or supplier certification of compliance with the performance requirements of this specification for the following:

1. Liner system
2. Roll-off containers

For approval prior to mobilization:

Excavation plan and schedule, including proposed equipment, excavation sequencing, and schedule.

Work by Others:

The Contractor shall be responsible for handling of all listed wastes once the subcontractor has completed packaging in accordance with the terms of this specification.

PART 2--PRODUCTS

MATERIALS:

Waste Packaging Materials: Waste-packaging materials and procedures shall meet the requirements of DOE/ID 10881 and DOT 49 CFR for IP-1 containers transporting Class 7 materials. Packaging will be supplied by the subcontractor. Appropriate packaging includes but is not limited to 20- and 40-cubic yard roll off containers with liner systems (polyethylene liners, “burrito bags”, or Super Sacks). The subcontractor shall ensure that all loads comply with applicable legal weight limits on county, state, INEEL, and Federal roads.

Roll-off containers will be certified decontaminated or uncontaminated by the supplier, and have covers. Labeling materials and procedures shall be in accordance with DOE/ID 10881. All CERCLA waste shall be labeled with a “CERCLA Waste” label that includes an accumulation start date, waste description, applicable codes, and the generating site’s name.

General Backfill Satisfactory Soil Materials: Satisfactory soil materials are defined as those complying with AASHTO M145, soil classification Groups A-1, A-2-4, A-2-5.

General Backfill Unsatisfactory Soil Materials: Unsatisfactory soil materials are those defined in AASHTO M145 soil classification Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7; also peat and other highly organic soils.

General Backfill and Fill Material: "Satisfactory" soil materials free of rock, gravel larger than 3 in. in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter. Select pit run gravel is available at the TAN gravel pits. Gravel pit material and use of the gravel pits shall be at no material cost to the Subcontractor. Upon completion of operations involving fill material removal, the Subcontractor shall grade and reshape the disturbed areas. Sloped surfaces shall meet the requirements of OSHA 29 CFR 1926. Coordinate gravel pit use with Mike Jackson-526-8872.

Aggregate Base or Leveling Course Material: Naturally or artificially graded mixture of 3/4 in. maximum size crushed gravel, crushed stone, natural and crushed sand. Material shall meet the requirements of ITD SSHC subsection 703.04.

Topsoil: Natural, friable surface soil of organic character suitable for agricultural purposes. Topsoil shall be free of objectionable quantities of subsoil, roots, stones, or other deleterious substances.

Sand Bedding: AASHTO M145, soil classification Group A-3.

Water: Water for use in obtaining optimum moisture content and dust control will be made available from hydrants at TAN.

PART 3--EXECUTION

EXCAVATION:

Clearing and Grubbing: All areas to be excavated shall be stripped and cleared of all brush, weeds, rubbish and organic matter as needed. All vegetable matter, roots, brush and debris encountered during the stripping operations shall be removed from the cleared areas to a depth of at least 4-in. below the subgrade. Stripped material shall be stockpiled or disposed of as specified hereinafter.

Earth Excavation: Earth excavation includes removal and disposal of all material within the limits of the excavation including soil material of any classification, and other materials encountered that are not classified as oversize debris excavation or unauthorized excavation.

Oversize Debris Excavation: Debris excavation consists of removal and disposal of materials encountered requiring use of special equipment. Large tank sections shall be removed and packaged in accordance with the RD/RAWP. Other debris, such as abandoned piping will be packaged for shipment to the ICDF.

Unauthorized Excavation: Unauthorized excavation consists of removal of materials beyond indicated elevations or dimensions without specific direction by the Contractor. Unauthorized excavation, as well as remedial work directed by the Contractor, shall be at the Subcontractor's expense.

Stockpiling and Disposal: Excavated material that is suitable and required for backfilling, grading or topsoil, shall be piled in an orderly manner a sufficient distance from the edge of the excavation, but in no case closer than 2 ft, and so located that it will not interfere with normal vehicular or pedestrian traffic. Excavated materials to be used for backfill shall be kept free from vegetation and other objectionable materials. Topsoil to be used for finish grading shall be kept free from subsoil, vegetation and other objectionable materials and stones larger than 1-in. Excavated materials requiring disposal shall be packaged, labeled, and prepared for transport to ICDF for staging and disposal.

Unstable Soils: If wet or otherwise unsatisfactory soil is encountered in an excavation, at or below the excavation line, it shall be brought to the attention of the Contractor and removed as directed in accordance with Article 38, "Differing Site Conditions", of the General Provisions. The bottom of the excavation shall then be brought to the required grade with concrete or compacted backfill as specified hereinafter. Excavation of unstable soil resulting from the Subcontractor's neglect to keep the excavated opening dry, and other over depth excavation not required to satisfactorily complete the work, shall be brought up to the required grade with concrete or compacted backfill as specified hereinafter at the Subcontractor's expense.

Shoring and Bracing: The sides of all excavations shall be sloped or securely shored and braced in accordance with OSHA 29 CFR 1926, Subpart P. The slopes outlined in the drawings are based on the

Contractor's sampling of two boreholes at the site. The Subcontractor shall be responsible for monitoring conditions at the site and ensuring compliance with OSHA 29 CFR 1926, Subpart P at all times.

Control of Water: All excavations shall be kept free of standing water. The Subcontractor shall control surface water in accordance with section 02140.

HAULING OF EXCAVATED MATERIAL

General: Material shall be loaded into appropriate containers (see Section 2 of this specification) by the subcontractor. The Contractor shall be responsible for securing loads in accordance with the containment manufacturer's written instructions and the project HASP, and transporting the loads to the ICDF. At the ICDF, containers will be unloaded and staged for dumping by the Contractor.

BACKFILL OR FILL:

General: The excavations shall be cleared of all trash and debris prior to backfilling or filling. All backfill or fill material shall be free from trash, organic matter and frozen particles. Backfilling or filling shall be done only when approved by the Contractor. In excavations that are shored, shoring and formwork shall be removed or raised as backfill or fill is placed.

Placement: Concentrated dumping of backfill or fill material into excavations will not be permitted. No water shall be used for placing, settling or compacting backfill or fill except to obtain optimum moisture content. All material must be placed in uniform layers not to exceed 12 in. loose measurement. Loose backfill or fill may be compacted as specified hereinafter.

Compaction of Subgrade: Unless otherwise indicated on the drawings or specifications, compact all backfill and fill material. Unless otherwise indicated, all "compacted" backfill or fill shall be compacted to at least 90% of maximum density at optimum moisture content as determined by AASHTO T99. Unless otherwise noted, loose measurement lifts shall be 12 inches maximum. Each lift shall be compacted before the next lift is placed thereon. Compacted backfill or fill density and moisture content may be measured by the Contractor at any location and depth. Sections of backfill or fill failing to meet the minimum compaction requirements shall be corrected prior to placement of subsequent lifts.

Topsoil Placement: Before placing topsoil, scarify subgrade to a depth of two inches by use of disks or spike tooth harrows. Spread topsoil uniformly and compact to a depth of 6 inches at 85% of maximum density at optimum moisture content.

EQUIPMENT:

Watering Equipment: Provide water tank trucks capable of applying a uniform unbroken spread of water over the surface. A suitable device for positive shut-off and regulation of flow shall be located to permit operation by driver in cab.

FIELD QUALITY CONTROL:

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 02200

SECTION 02486--REVEGETATION

PART 1--GENERAL

SUMMARY:

Section Includes: Work includes, but is not limited to:

The subcontractor will furnish all labor, materials, labor, tools, and equipment, and place seed and mulch in accordance with this specification and as indicated on the design drawings. This section describes the subcontractor's requirements to provide a final vegetated surface in those areas designated herein or as shown on the drawings. These designated areas will be seeded and mulched as set forth in this section and on the design drawings.

Related Sections:

a) Section 01051 – Construction Surveying and Staking
b) Section 02220 – Earthwork

Work to be Performed by Others:

The contractor will:

a) Review and approve data submittals as required by this specification
b) Have the option to inspect equipment, work, and materials for compliance with the requirements of this specification, in addition to inspection by the subcontractor
c) Have the option to review preseeding conditions and other related job conditions during performance of the work
d) Perform inspection and acceptance of the final vegetated surfaces.

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein.

United States Department of Agriculture (USDA)

Federal Seed Act

STATE OF IDAHO

Idaho Pure Seed Law, Chapter 4, Title 22, Idaho Code

INEEL Health, Safety and Hazards Prevention Documents

Comprehensive RD/RA Work Plan for the Test Area North OU I-10, Selected Sites.

SUBMITTALS:

Procedures: The subcontractor will submit a Seeding and Mulching Plan to the contractor for written approval within eight working days after notice to proceed. The plan will describe the methods of placement and the equipment to be used during operations.

Certifications: The following certifications are required:

a) The subcontractor will submit eight working days prior to use, the seed vendor's certified statement for the seed mixture required, stating scientific and common names, percentages by weight, and percentages of purity and germination. The Subcontractor will submit a signed

statement certifying that the seed is from a lot that has been tested by a recognized laboratory for seed testing within six months prior to the date of delivery to the construction site.

b) The subcontractor will submit a letter to the contractor verifying conformance to the requirements identified in this specification within four working days after completion of the work specified herein.

c) The Subcontractor shall submit a written warrantee guaranteeing the work for one year from date of acceptance by the contractor.

Records: The subcontractor will submit records of inspection to the contractor within four working days after completion of the inspection.

PART 2--PRODUCTS

MATERIALS:

Seed Mix: Seed will be labeled in accordance with United States Department of Agriculture rules and regulations under the Federal Seed Act and Idaho Pure Seed Law. Seed will be furnished in sealed bags or containers clearly labeled to show the name and address of the supplier, the seed name, the lot number, net weight, origin, the percentage weed seed content, the guaranteed percentage of purity and germination, pounds of live seed (PLS) of each seed species, the total pounds of live seed in the container, and the date the of the last germination test that will be within a period of six months prior to commencement of planting operations. Seed will be from a current or previous year's crop. Each variety of seed will meet the requirements of the Idaho Pure Seed Law.

SPECIES	RATE OF APPLICATION (POUNDS PER ACRE PURE LIVE SEED)
"Critanna" Thickspike Wheatgrass, Elymus lanceolatus var critanna	3
"Sodar" Streambank Wheatgrass, Elymus lanceolatus var sodar	3
Rimrock Indian Ricegrass, Achnatharium hymenodes var rimrock	4
Wyoming Big Sagebrush, Artemisia tridentaka ssp. Wyomingensis	1
Winterfat, Ceratoides lanata	2
Total	13

Fertilizer: Fertilizer composition shall be as determined by soil testing the new graded topsoil in four locations as approved by the Contractor. Each component of the fertilizer may vary two percent.

EQUIPMENT:

Seedbed Preparation: Disks, harrows, roller harrow-packers (culti-packers), tooth type harrows, shovels, or other similar equipment.

Seeding and Fertilizing: Drills with double disc and agitator, ground driller hand seeder, culti-packer with seed boxes, Brillion seeder, or other similar equipment.

PART 3--EXECUTION

Season of Work: Seeding shall be done between November 15 and December 15. Specific ideal seeding times within these windows shall be as required for proper seedbed preparation.

Weed Control: Areas to be seeded shall be maintained reasonably free of weeds. The area will be sprayed with an appropriate herbicide that will discourage growth of invasive and noxious weeds.

Seedbed Preparation: Soil shall be tilled a minimum depth of 4 inches**.** The seedbed shall be firm below seeding depth and well-pulverized and loose on top. It shall be free of clods and weeds. Seedbed preparation shall not be performed when soil conditions are not suitable for tilling: too dry, too wet, frozen, etc. Tillage shall produce cross-slope furrows on slopes.

On areas subject to severe erosion, the extent of seedbed preparation shall not exceed that which can be seeded in one day.

Fertilizing: Fertilizing shall closely follow seedbed preparation. Fertilizer shall not be mixed with seed. Fertilizer may be drilled or broadcast. Fertilizer shall be applied as determined by the results of soil testing.

Seeding: Seeding shall closely follow fertilizing. If the seedbed has been disturbed, then the Subcontractor shall prepare the seedbed again. Seeding work shall not proceed until the seedbed has been inspected. Seeds shall be thoroughly mixed prior to application. Seeds shall be uniformly applied at the previously specified rate. Seeds shall be buried 0.25 to 0.75 inches. Seeding shall not be performed when weather conditions are unfavorable: high wind, heavy rain, etc.

Protection: Traffic over seeded area shall be prohibited.

FIELD QUALITY CONTROL:

Seedbed Inspection: Seeding shall not proceed until the Contractor’s Representative has inspected the seedbed for conformance to these specifications.

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 02486